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Original Articles.

A CONSIDERATION OF AUTO-INTOXICATION AND AUTO-INFECTION AS CAUSE OF VARIOUS MENTAL DISORDERS.

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It is the purpose of this paper to call the attention of the medical profession to the importance of auto-intoxication as an etiological factor in many forms of so-called mental disease. The results of my experience lead me to believe that this is a factor on which too little stress has been laid, and if such a thing can be proven, its value both as concerns treatment and prognosis cannot be too strongly emphasized. The theory of auto-intoxication is not new, and while it has been suggested by many, very little attempt has been made to give it careful study, and if this paper does no more than to stimulate investigation along these lines, the publication would seem to be justified. The basis of the paper consists of the study of my own cases (a report of which will be published later) and the stated opinions of men from different parts of the country whose experience renders their statements worthy of consideration.

If it can be shown that auto-intoxication is a definite factor in the causation of mental diseases, its importance in planning the course of treatment and in making the prognosis can only be fully appreciated by those constantly in touch with such cases. It will certainly mean that many of the cases which are now sent to the insane hospitals will be received at the general hospitals for observation and treatment, not as insane people, but as cases of auto-intoxication which require active treatment, such as is almost impossible to give on a large scale in any of our state institutions to-day. Also in private practice, many patients now treated as cases of purely mental disease will be treated for auto-intoxication. It is undoubtedly true that some forms of insanity affect the digestive functions and general metabolism, and undoubtedly it is equally true that the primary disturbance of metabolism is at times the cause of mental alienation. This is seen in some of the infectious diseases, as typhoid fever, or with the glandular diseases, such as thyroidal and adrenal diseases (and according to Dr. Andriezen of London, acromegalia). It seems probable and quite in keeping with the general trend of medicine to-day, as well as only a step beyond the conditions already recognized, that many of the mental disorders now not generally associated with infection will be shown to be due to such a cause.

Auto-intoxication is a poisoning of the system by the products of disturbed metabolism, and these products may be abnormal in character, or normal in character and abnormal in quantity. Auto-infection is due to the presence within the body of some form of bacterial life, the symptoms representing part of a general toxemia, and it is probable that any of the infectious organisms may produce such a toxemia. We all know that normally the food principles that are necessary for the nutrition of the brain and other parts of the body are absorbed from the stomach and intestines, then carried by the circulation to the various parts of the body, leaving the débris, containing very little nutrition, but much poisonous and effete matter, to be passed on and evacuated. With a disturbed metabolism, poisonous instead of nutritious elements are absorbed, and the nutritious are evacuated. At the same time in certain cases, other organs are disturbed in their action. The bowels become constipated for want of the bile, pancreatic and other juices, and in young women the menstrual *molimen* often ceases, and such débris as is usually thrown off at that time is absorbed into the system. Examination of the urine in many cases shows a disturbed metabolism. In the infections, as is now held regarding rheumatism, it is probable that any of the so-called infectious organisms may lead to a toxemia in which the brain as well as the glands, joints, eyes and other organs may be involved. We do not yet know that some of the forms of auto-intoxication are not caused by a microbe, and that *folie circulaire* is not caused by a sporuliferous protozoon which divides once in three, six, nine, or twelve months instead of in one, two, three, four or more days, as in the case of malaria. It may be going beyond this paper, but as is hereinafter expressed, if scientists had been satisfied with heredity as the cause of phthisis, the tubercle bacilli would never have been discovered. So, also, in mental diseases, heredity in many cases is an inadequate cause.

The various forms of toxic insanity due to drugs and stimulants are too well recognized to require more than mention here. Alcohol gives delirium and visual hallucinations, — generally of animals, — and maniacal attacks. Atropin gives illusions and hallucinations and nicotin gives delirium and coma, when acute, and when chronic, symptoms resembling those of tabes. Chronic morphine poisoning causes morbid fears and psychoses, as does also ergotism. Toadstool poisoning causes delirium and epileptiform attacks. It is still further suggestive that such men as Spitzka in this country, Clouston and Kræplin in Europe, have failed to discover any change in the brain in cases of melancholia, acute mania, and some of the other forms of mental disease. If this is true, why continue to class these diseases only under the head of "Diseases of the Brain" and waste our time trying to prove that the brain is diseased, when in other toxic cases, malaria, influenza, typhoid, pneumonia, rheumatoid arthritis, etc., we consider such symptoms due to perverted metabolism, or the work of bacteria, and successfully treat them on these lines? In order that such an important subject should not depend upon my own opinion, I have from various text-books and papers on mental diseases, and from letters received from many alienists, whom I have interviewed, or with whom I have been in correspondence, brought together the following valuable testimony in support of this theory:

There is a suggestion in several of the books of early writers on medicine that auto-intoxication was considered one of the causes of certain mental diseases, and, although they did not use the word "auto-intoxication," they evidently had this cause in mind, and considered it of great importance.

Culpepper in his work written prior to 1654 says: "There is in Galen (who died A.D. 201) and almost all authors, a three-fold epilepsy. The first is that which hurts the brain, in which the disease is; the second is that which hurts the brain *by consent from the stomach;* the third is when the disease is sent from other parts of the body to the head." "But it is remarkable and well known that an epilepsy comes for the most part *from the guts the matter that breeds worms,* from the matrix and other parts." Of mania he says: "Wherefore it is probable that some *certain poison bred in the body* may be the chief cause of madness. The matter producing this disease is contained in the veins and arteries, either of the whole body or those nearest the brain, or in the vessels of the brain."

Burton in his "Anatomy of Melancholy," published prior to 1639, says: "Of retention and evacuation, of meat and drink there be divers kinds, which are either concomitant, assisting or sole causes many times of melancholy. Galen reduceth defect and abundance to this head; others all that is separated or remains."

The authors of to-day almost invariably in writing of mental and nervous diseases refer in a few lines to auto-intoxication as one of the causes of certain forms of insanity, which should be arrested as soon as possible, but I fail to find one writer in any book or work who devotes even one chapter to auto-intoxication, or the results of auto-intoxication as a disease of which the mental condition is only the result rather than the cause itself. Defendorf in his excellent translation of Kræpelin says: "If the researches of Kranisky, Cabbito, and Ayostini can be substantiated, it would seem probable that genuine epilepsy is due to a toxic condition arising from faulty metabolism, and that the immediate cause of the appearance of convulsions is the accumulation of deleterious substances in the blood." Of dementia precox he says: "In consideration of the close relationship with the age of puberty, the presence of disturbances of menstruation, and the frequent appearance of the disease for the first time during pregnancy and puerperism, further assumption is made that it is the result of auto-intoxication. Defective heredity, as well as imprisonment and acute diseases, is presumed to act by lessening the power of resistance to auto-intoxication."

According to Bouchard, "Arthritism is made up of a host of manifestations that all appertain to an arthritico-nervous cycle, in which we find, side by side, migraine, epilepsy, gout, hysteria, rheumatism, diabetes, etc., and is especially characterized by a tendency to congestion, by reason of which, or on account of some yet unknown cause, the general nutrition is profoundly altered. Arthritic subjects are often dyspeptic, some having dilatation of the stomach, others intestinal indigestion. This is a source of toxic action, by way of auto-intoxication." He also says that "neurasthenia is one of the most frequent of the neuroses related to arthritism, and that arthritism may be the originating cause of hysteria (Bouchard, Charcot), epilepsy (B. Tessier), angina pectoris (Landouzy), and paralysis agitans (Pierret, Vansella). Therefore, if auto-intoxication is one of the underlying causes of arthritism, it is one of the originating causes of neurasthenia and the diseases just mentioned."

Dr. Keene in quoting Bouchard says: "Bouchard has determined a unit of poison which he calls a toxic unit and defines as the amount of poison required to kill one kilogram of living matter. The urotoxic is the quantity of urinary alkaloids capable of killing a rabbit weighing a kilogram. The urotoxic coefficient in man is .465. In other words, for each kilogram of body weight enough poison is excreted in twenty-four hours to kill 465 gm. of living matter; or, in two days and four hours a man excretes enough poison to kill himself. These facts are of the utmost importance to the alienist. Heredity may in time be as much divorced from insanity by the toxins as it has been separated from phthisis by the bacillus of Koch."

"Auto-intoxication in mental diseases was one of the chief topics for discussion at the annual congress of French alienists held at La Rochelle, in August, 1894. At that time Drs. E. Regis and A. Chevalier-Lavaure made a most masterly report. They distinguished three orders of clinical facts, and considered separately the mental disorders that develop as a result of (1) acute infectious diseases; (2) those due to visceral disturbances; (3) those of the diathetic maladies."

We all know that typhoid and eruptive fevers, "grip," erysipelas, puerperal fevers, etc., are oftentimes followed by the most marked insanities. Whence comes this if not from toxins peculiar to the disease? How much more rational this than the theory of nervous shock whose influence must be transitory? The delirium of fever is surely the result of deficient excretion; once make this free and delirium ceases, temperature falls.

Drs. Regis and Chevalier-Lavaure ask in this connection if infectious disorders are not sometimes the cause of general paralysis. Dr. Aldu Blumer of the Utica State Hospital, New York, answers, "For my own part, I believe this opinion is not susceptible of any very great generalization, but that it nevertheless is based upon actual facts." With regard to visceral disturbances causing insanity, he says: "Visceral disorders also often produce insanity. This is well known, and the earlier writers localized insanity in the liver and the bile. But the view according to which insanity thus produced is the result of an auto-intoxication is altogether a recent one." The third group of Regis and Lavaure is auto-intoxication from diathetic maladies. With re-

gard to this Blumer says, editorially: "A powerful argument in favor of the origin of insanity by auto-intoxication is deduced from the fact that anti-infectious, antiseptic treatment, either general or local, has often given excellent results. If this theory is true then the treatment of insanity must be revolutionized, and the infection, the auto-intoxicant, must be combated and eliminated if we wish to eliminate the disease. How we can best do this is a problem yet to be solved."

Gray states that intestinal derangements often cause melancholia, and the most frequent of these intestinal lesions is a functional derangement of the duodenal region of the small intestine, but he considers the relief of these conditions will generally not be sufficient to disperse the melancholia. Of epilepsy he says it is a fact of practical importance, and one that seems to be almost universally overlooked, that profound malnutrition may be a cause of epilepsy.

At a meeting of the Medical Society of London recently an interesting discussion on epilepsy was held and Russell stated that the theory of auto-intoxication as a cause of epilepsy had the most supporters.

Some authorities believe that the auto-intoxication results not only from the products of disturbed metabolism, but also from the absorption of toxins produced by excessive growth of the micro-organisms which normally inhabit the gastro-intestinal tract. General paralysis of the insane is considered by several authorities as being caused by auto-intoxication of this kind.

W. Ford Robertson says: "I think we may logically infer that the toxemia of general paralysis is of gastro-intestinal and bacterial origin. The clinical and anatomical evidences of irritation of the gastro-intestinal mucous membrane, the irritative changes in the portal spaces and the fact that so far it has been impossible to localize the origin of the toxins in any other part of the body, all point to the gastro-intestinal tract as the place in which the toxins are formed. Micro-organisms normally inhabit the alimentary tract, but it is the excessive growth of these which causes the gastro-intestinal auto-intoxication. This excessive growth is prevented normally, according to some writers, by the hydrochloric acid of the gastric juice and by the bile. Bouchard says it appears to be certain that the liver normally arrests or transforms toxic substances which originate in the intestinal canal. Others say that the micro-organisms are held in check here, as elsewhere, by leucocytes, alexins, and anti-toxins. Besides these, there is the surface epithelium and the mucous secretion which act mechanically in preventing this excessive growth.

"Then there is supposed to be a weakening of the power of natural resistance to bacteria. These increase in number. The toxins are formed in too great quantities to be excreted freely or destroyed and are absorbed and affect the nutrition of certain of the tissues. The vessels of the central nervous system are especially sensitive to the toxins and undergo proliferative and degenerative changes. In consequence of these structural changes, the nutrition of the adjacent nervous elements is interfered with."

W. Ford Robertson says in his summary that (1) General paralysis is dependent upon the occurrence of a chronic toxemia of gastro-intestinal origin. (2) That toxins are mainly bacterial and are formed in consequence of a partial breakdown of those forces by which the harmful development of micro-organisms that cause the ordinary flora of the alimentary tract is normally prevented. (3) The toxins are absorbed and tend specially to produce proliferative and degenerative changes in the vessels of the central nervous system. (4) These vascular changes tend to set in earliest in those parts of the brain that are relatively best supplied with blood, because their walls are brought in contact with the largest quantity of toxins.

Krainski, in his study of epilepsy, says that on the days it attacks, or just preceding them, the output of urea is greatly diminished. In this condition of disturbed metabolism, the system is supposed to form ammonium carbonate instead of urea. This compound gives off ammonia which Krainski believes causes the fits. Again, Mott, Halliburton and Donath believe that the alkaloid cholin found in the cerebro-spinal fluid in many cases of epilepsy, locomotor ataxia, paretic dementia, brain syphilis and brain tumor is the cause of disease in many people that are afflicted with these troubles. By injecting cholin into the cerebro-cortex of animals Donath has produced localized and general convulsions in them. By the injection of a salt solution no such convulsions have been produced. If these observations are carried on still further with the same results epilepsy will be classed among the auto-intoxications with the result that some anti-toxin may perhaps be found to help it.

Chase in his book on general paresis says: "There is a tendency to believe the theory first set forth by Angiolla that general paresis is a toxic affection produced by auto-infection either directly or indirectly through an interference with nutrition. It is in this malign way that lead (Kurman *et al.*) and tobacco (Guisham) are supposed to act in the few cases now and then ascribed to those agencies as the exciting cause. According to those observers the baneful influence of alcoholic abuse and licentiousness as well as mental overstrain is to be sought also in these nutritional defects that contaminate the blood with poisonous products which induce the degenerative changes in the nervous tissues."

Pershing says: "Analogy leads us to believe that such terrible emotional disorders as melancholia, mania, acute delirium and transitory frenzy are forms of intoxication, although the poisons have not yet been discovered, and if the cause of any emotional disturbance is obscure, we should always carefully consider the possibility of its being a poison of some kind." Lord Byron is quoted as saying: "Talk about champagne! Nothing cheers the spirit like a dose of

salts," from which one may safely infer that some, at least, of Byron's melancholy moods were caused by intestinal toxemia.

Schofield in his book of "Force of Mind" has the following: "That sores in melancholy persons will not heal, that many mental cases are unable to resist attacks of tubercle bacilli." Brown Séquard showed that the section of certain cutaneous nerves, thereby cutting off the corticle influence on the hair bulbs, will cause the hair to become white on these spots and, shows the mental effect where those centres are disturbed.

Peterson in his third edition says: "Accumulations of deleterious agents in the blood in such quantity as to affect the nervous system (*e. g.*, carbonic acid and the poison of diabetes and of uremia) have been long known to medical science, but the more mysterious poison produced by disease in various parts of the body, by fermenting and putrefying substances in the alimentary tract, and by some of the acute infectious fevers, have only of late taken an important place in the etiology of the psychoses. We do not yet know how frequently auto-intoxication from absorption of intestinal poisons determines insanity, but the facts thus far collected point to the origin of a considerable number of cases from this cause. These cases are usually of depressed type, but sometimes maniacal." "Researches in physiological chemistry of digestion, as well as observations in many pathological conditions, have substantiated that auto-intoxication from the absorption of poisonous substances generated in the alimentary canal by putrefactive and fermentative process is not only a real thing, but a frequent factor in the etiology of a number of nervous disorders, such as headache, neurasthenia, hysteria, neuralgia, and even graver maladies like epilepsy, melancholia and mania. It behooves us, therefore, in these diseases, to investigate carefully for evidence of any such cause. Periodical or constant attacks of gaseous diarrhea are somewhat indicative of this condition. Frequently, the condition of the bowels furnishes no information of the actual state of affairs. Recent researches tend to show that an excess of ethereal sulphates in the urine (indican) in connection with other symptoms is a good index of auto-intoxication."

Clark, in his "Mental Diseases," says that in melancholia there is defective nutrition throughout the body as is evident in non-assimilation and mal-assimilation of food.

Among other recent writers who mention auto-intoxication as a cause of mental disease, or refer to it in some way, is Regis, who states that among the several cases of melancholia, auto-intoxication, especially a gastro-intestinal one, is much more frequent than is commonly supposed. It may commence with gastro-intestinal disorders or be consecutive to a more or less ancient dyspepsia.

Dr. Allan McLane Hamilton in a paper on this subject states that a study of the cases that formed the basis of observation by him for a year unquestionably bear out the assumption that disturbances of the gastro-intestinal tract, more often than is generally supposed, are attended by bacterial necrosis and the introduction into the general circulation of certain very virulent toxic agents whose effects are expended mainly upon the nervous system. He says: "I think I am safe in saying that nearly all the rapidly developing confusional insanities have this explanation, and we must, therefore, be on the alert for such a cause, even when the case has commonplace features. No other alternative has presented itself so strongly to my mind as that of intestinal putrefaction, and in all the patients whose urine was examined a decided increase in the amount of indican was found even when the diet was carefully regulated."

"From the data obtained from all available sources, my own cases and others, it would appear not only that the ratio of the sulphates between themselves and to the urea, and the presence of indican in considerable amount, are indications of intestinal putrefaction, which, no doubt, influence the course of various insanities, but that a large increase of the combined sulphates has much to do with the genesis of various psychoses." His conclusions are:

"(1) Urines rich in indican contain very little or no preformed sulphuric acid, and are toxic.

"(2) When the sulphate ratio is materially changed, it is likely to indicate autotoxis in connection with an increase in the amount of combined or ethereal sulphates.

"(3) Such conditions are generally found with acute insanities, in which rapidly developing symptoms occur.

"(4) Fugacious and changing illusions and hallucinations, unsystematized delusions, confusion and verbigeration in connection with insomnia, pallor, intestinal indigestion, constipation and rapid exhaustion are due to autotoxis.

"(5) Paranoiac states, or those in which concepts are the features, chronic stuporous conditions, and certain forms of dementia have little to do with the formation of intestinal products of putrefaction.

"(6) Various post-febrile, traumatic, alcoholic or drug insanities are those in which autotoxis is most constant.

"(7) The variation in the excretion of combined sulphates keeps pace with the changes in the progress of an established insanity, *accès* and epileptoid attacks being directly connected with putrefactive processes."

The president of the Medical Society of London pointed out in 1896, that there was a well-known type of hypochondriacal melancholia associated with catarrh of the transverse colon in which mental characteristics were out of proportion with the lesions, cases in which there was no family history, and the symptoms readily yielded to a visit to Carlsbad or Marienbad. He said he had often thought that the symptoms in those cases might be due to excessive production of ptomaines in the intestines.

Mercier in his Textbook of Insanity, states:

"By far the most important of the direct stresses which contribute to the production of insanity is alteration in the composition of the blood by which the highest nerve regions are nourished. More potent even than attenuation of the nutritive supply to the brain is its vitiation. By introducing a poison into the blood, we can produce insanity at will. Proof of these statements is exhibited by every case in which ether or chloroform is administered, by every case of drunkenness. Another of these poisons is carbonic acid gas whose intoxicating effect is seen in the delirium of heart disease. Also substances so complex as the toxins produced by the specific organisms of zymotic disease. They include foreign substances introduced into the body from without, as well as toxins produced within the body by variation of its own metabolism, and, perhaps most deadly of all, toxins produced by co-operation of foreign agents and bodily processes."

Chapin says that post-partum insanity is more frequently due to sepsis; that observations at the Pennsylvania Hospital for Insane strengthen this opinion; that with the introduction of strict antiseptic measures in obstetrical practice, puerperal insanity has decidedly decreased.

Lewis A. Conners, in Vol. I of the Reference Handbook of Medical Sciences, says: "Among the abnormal products are to be distinguished those which under normal conditions would promptly undergo further change, and those which in the healthy organism are never found or are present only in minute quantities.

"While certain organs are occupied in manufacturing poisons, certain others are busily engaged in arresting these poisons and excreting, or in converting them into useful or harmless bodies. Upon these organs of defence, then, rests the responsibility of so disposing of these constantly forming poisons of the body that the latter is protected from their deleterious effects. And this these defensive organs are capable of doing where all of the bodily functions are acting normally and when no excess of noxious matter is introduced from without. The adjustment, however, is so delicate that a functional derangement of any one of the organs may suffice to permit of the accumulation in the blood of enough toxic material to give rise to systematic disturbances of an acute or chronic nature, in other words, to auto-intoxication."

Brunton suggests that the lassitude and drowsiness which are so apt to follow a full meal may depend upon the absorption of an excess of the normal digestive products, and so be a mild manifestation of auto-intoxication.

Most of the severe constitutional disturbances associated with gastric disorders in childhood are believed by Heubner to be due to auto-intoxication. Of the chronic intoxications of gastric origin those associated with dilatation of the stomach deserve special mention. In this condition there exists every favorable condition for the formation of fermentative and putrefactive products and for their absorption. These intoxications accompanying gastric dilatation are especially characterized by the periodicity of the appearance of the symptom. Among other chronic intoxications may be mentioned migraine, certain other periodic headaches and neuralgias, and possibly, too, the gastric crises of tabes dorsalis.

Dr. Page, the Superintendent of the Danvers Insane Hospital, recently told me that he believes that many of his cases commence with the condition of auto-intoxication; that possibly many cases of dementia precox start this way, and that he hoped something would eventually be done to prevent the progress of these cases. He has used the salt solution with benefit.

During a recent visit to the Quebec Insane Asylum, Canada, Dr. Roy, the resident physician on the women's side told the writer that for some time they had used sulphate, phosphate and chloride of sodium and phenic acid in distilled water with benefit, also a salt solution with sulphate and chloride of sodium subcutaneously.

Dr. Bigelow T. Sanborn, Superintendent of the Maine Insane Hospital, Augusta, says that he is quite sure auto-intoxication becomes a contributing cause of insanity; that he has recently had one case about which he is decidedly of that opinion, and estimates that in at least 5% of the admissions to the Maine State Hospital, there is evidence that auto-intoxication has played an important part in incipient stages of the disease.

Dr. Folin, of McLean Hospital, says they have done very little work yet on the feces. What they have done is along the line of straight metabolism. They have made very careful analyses of two or three hundred samples of urine from all kinds of cases except epilepsy. Have injected seven or eight dozen rabbits with such urine with no more results than with normal urine. Says the urine is not toxic and that Bouchard is all wrong. The symptoms shown were due to potassium salts and NH_3, he thinks. Says it is impossible to get the results Bouchard did even if his methods of procedure are most faithfully followed, and thinks others have said the same thing lately.

Dr. G. M. Dewing, Superintendent at Long Island State Hospital, King's Park, Long Island, in his report for the year ending 1902, states that in acute cases "auto-intoxication, especially from the intestinal canal, is almost always present, and that the medical symptoms are found to be greatly exaggerated owing to a failure on the part of the organism to remove waste." He examines the blood and secretions. Nutrition is maintained by giving all the nourishment the organism can assimilate and make use of. He also gives water in considerable amount between meals; this is insisted on and is found to be of great advantage.

Dr. R. M. Elliott, Superintendent of the Willard State Hospital, of New York, says: "Judging from our experience auto-intoxication plays a part as an exciting factor in a considerable number of cases of insanity."

(To be continued.)

THE GEOGRAPHICAL DISTRIBUTION OF TUBERCULOSIS IN BOSTON IN 1901-3 AS COMPARED WITH THE DISTRIBUTION IN 1885-90.*

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AND
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Secretary of the Boston Society for the Relief and Control of Tuberculosis.

MR. LECKY, the Irish historian, in the course of his review of terrestrial events in the fifty years of Queen Victoria's reign, makes the following statement:

"The great work of sanitary reform has been, perhaps, the noblest legislative achievement of our age, and, if measured by the suffering it has diminished, has probably done far more for the real happiness of mankind than all the many questions that make and unmake ministries."

This is true, not only in England but in the United States, and right here in our midst in Boston. And it is also true in a special degree of the work that has been done in the line of fighting what Oliver Wendell Holmes termed "The Great White Plague."

We are all familiar with the ragged line of the tuberculosis chart, showing a steady gain in the death-rate from tuberculosis since 1880. These charts have been furnished both by our state and city boards of health, and they mark a great gain to the city and state in lives: active, productive lives saved to the community; wage earners who have been saved to support fathers and mothers in their old age, and lives saved to keep growing families together. Tuberculosis, it must always be remembered, is a disease of manhood and womanhood and takes the majority of its victims right in the height of their producing powers, between the ages of fifteen and thirty-five years. Therefore anything which tends to decrease the death-rate from this preventable disease is of the greatest economic value, and yields real money return to the community.

The gains that have been made in the past decades have been due to a number of different causes. We cannot entirely put the credit to the discovery of the bacillus of tuberculosis, important as that discovery has been. But gains were being made by the efficient regulations of our boards of health, the good water supplies of our cities and towns, and more important yet, by the introduction of drainage systems in place of the old cess-pools and vaults.

A still active business man has told me that in his early days he lived in the neighborhood of Leverett Street, and that through the summer months all night long the people were kept awake by the rumble of carts, busy at that unseemly time in emptying the cesspools and vaults of the neighborhood, while the air reeked with offensive smells.

Compare this state of things with the conditions found to-day, even in the most neglected parts of the town, and the deductions are obvious.

It is my purpose to show you to-night more graphically than by a chart line the changes in regard to the existence of tuberculosis in the city during the past three years as compared to the period of 1885–1890.

In the United States census of 1890 is to be found a map giving the distribution of tuberculosis as found in the wards of Boston during the years 1885–1890. Mr. A. M. Wilson, the Secretary of the Boston Association for the Relief and Control of Tuberculosis, has modified this map, and on the same scale has prepared another map from the Board of Health reports for the years 1901–3.

Before showing the maps I will first read you a table of percentages of deaths according to parent nativity which will in a measure help to explain some of the changes that we shall find noted in our maps.

Table [1] showing the relation of deaths due to pulmonary tuberculosis to deaths from all causes in Boston during the years 1901–3, giving the birthplace of the parents of the diseased:

(1) Ireland, 16.20%; (2) Sweden, 13.70%; (3) British America, 13.30%; (4) Scotland, 11.73%; (5) England, 10.85%; (6) Germany, 10.73%; (7) United States (including colored), 6.87%; (8) Italy, 5.81%; (9) Russia, 5.35%.

This table is in general accord with similar statistics from other cities.

Undoubtedly were the colored population deducted from those of American parentage this group would show the smallest percentage, for it is well known that the death-rate from tuberculosis is far greater among the colored population in our northern cities than any other portion of the community.

The American born are a survival of those families who are able to stand the strain of our New England life and of the ordeal of our climate for at least three generations and ought to be pretty hardy by this time and well acclimated.

The Russian Jew has been always specially exempt from tuberculosis, and both he and the more recently arrived Italian have also been subject to an eliminative process of the United States government, by which none but healthy persons are admitted to the country, and the restrictions are more or less effective.

The Hebrew Benevolent Societies have told me that there is a marked increase in the disease among their people at present. That whereas three or four years ago they had only three or four applications for aid from persons suffering with tuberculosis, to-day they have from forty to fifty, so that undoubtedly this racial exemption that I have stated is not going to be held in the second generation.

The first thing of note on looking at Chart I is the situation of the plague centers, namely, the West End, the Cove and South Boston. Here the death-rate was over fifty per ten thousand inhabitants. The North End, Charlestown, Roxbury and Dorchester are not far behind with a death-rate of 40–50. Only one portion of the

* Read at the annual meeting of the Suffolk District Medical Society, November, 1904.

[1] Compiled from the Board of Health Reports.

city at that time showed a rate of under 15 per 10,000, and that was the west slope and top of Beacon Hill. Even the Back Bay at that time had a death-rate of nearly 20. The average death-rate from tuberculosis for the city during these six years was 36.12 per 10,000.

CHART I.

Now all this has changed; there has been a distinct improvement throughout the whole city, the average rate for the past three years, 1901–2–3, having been 21.71 per 10,000, a noticeable gain.

A glance at the map for 1901–3 at once shows that there is a large area where the rate is less than 15, whereas, in the former map, it was only small portions of two wards that showed this desirable condition. It will be seen at once that the ward lines are not the same as in 1885–90, but nevertheless, we are able to get a very good idea of the ground and the comparative distribution of the disease.

CHART II.

The wards now showing a rate under 15 per 10,000 are, 1, 10, 11, 20, 21. At the same time wards 2, 4, 6, 8, 16 and 22 show a smaller rate than the Back Bay did in the former period.

The highest rate is to be found in Ward 7, and is less than 40, while the highest in the former period was 67.16 per 10,000.

Wards 7, 13 and 18 have the unpleasant distinction of having the highest rate, namely 36.39, 34.97 and 28.98.

By far the most interesting change that has taken place in the whole city is the gain that has come about in the North and West Ends.

Looking at Chart I, it is seen that wards 8 and 9, which are nearly equivalent to the present ward 8, had a combined death-rate from tuberculosis of about 61; while now ward 8 has but 17.53, a gain of over 43, the greatest in the city.

The North End follows with a gain of about 29, also a very marked diminution. Ward 13, though even now one of the worst places in the city, shows a gain of 23.

Wards 1 and 2, in East Boston, show a gain of about 19 and 18 respectively.

Ward 7, which practically represents the old wards 10 and 12, has made a gain of only 5.76, and ward 12, which is mu· . the same as the old ward 18, remains more nearly stationary than any other division of the city. Other wards have made notable gains as can be seen by study of the charts, but I will not mention them in detail. It is much easier to point out the changes that have taken place and express pleasure and wonder at them than it is easy to explain these changes.

There are no statistics that we have been able to find that tell of the movements of population in Boston. All that we have been able to find out has been in general from hearsay evidence and must be taken as suggestive only.

Some will doubtless be familiar with their immediate neighborhoods and can apply the same reasoning to their own localities that we shall use, and can draw their own conclusions from them.

It is well known that the decade 1890–1900 saw the great bulk of emigration of the Russian Jews who then fled from oppressive Russian laws, and they began to come in large numbers in 1887–90. They landed in our city and settled in the North and West Ends and very soon began to exert pressure upon the old inhabitants of these sections. As a result, these sections, which were formerly largely settled by persons of Irish parentage became settled by the Hebrews. That is, a race with the highest death-rate, except the colored people, were displaced by a race with a low death-rate from tuberculosis. Before the decade had closed still another wave of immigration came, the Italians. Since the communication with Italian ports has been direct this wave has grown and grown, and is, in turn, pushing out many of the Irish still remaining, and even forcing out the Jews to other parts of the city and into neighboring cities. This new race has also a low death-rate from tuberculosis.

In ward 12 the small gain is much more difficult to explain. There has been certainly a great change in the population of the ward. The neighborhood used to be one of persons owning their own houses. Then came a change to boarding houses, in which persons had part of a house or several rooms, and later still conditions further changed so that one or two or even more people occupied the same room. In some of the narrow streets running parallel to Tremont Street and Shawmut Avenue, those of Irish parentage have largely disappeared and colored people have

taken their places. Thus there has been an increase and crowding of the population, and in the places where one would most expect to find the disease rampant a susceptible race has been partly replaced by a still more susceptible race.

It is, on the whole, a very satisfactory showing, and points out the parts of the city where the health and charity organizations should put out their energies to reduce the disease still further.

In spite of the favorable showing presented by these charts we must not forget that still 1,200 persons die each year of tuberculosis in the City of Boston: that Dr. Marcley has shown that over 1,000 Boston cases have applied to him for hospital assistance in the past five years and been refused because they were too far advanced for Rutland — many of them not too far advanced to be cured by proper treatment. Besides these there are many self-respecting persons who in no way have ever been a charge upon the city, and yet, as the result of this wasting disease, must have hospital accommodation or else bring themselves and their families to the direst poverty. And further in their narrow quarters, amply sufficient for persons in health, maybe, they run the liability of infecting some one of their own family, who, otherwise, might have been saved to become a self-supporting wage earner. It is not good economy for a great city not to provide for these people. A hospital would prevent whole families from becoming charges on the city and save its citizens in those families from the danger of possible infection as well as giving proper care for those who must die of this disease.

In closing, we can do no better than to quote the demand of the City Board of Health for a municipal hospital for tuberculosis:

"The pressing need of greater hospital accommodations for consumptive patients is brought to our attention with constantly increasing force. The moderate provision which has been made at Long Island is good, as far as it goes, but is altogether inadequate to meet the demand for the care of even the most abject cases.

"Consumption is one of the infectious diseases, dangerous to the public health, and susceptible of curative treatment. It presents a large number of indigent, advanced and helpless cases. Its proper care demands official interference, isolation, support and control in the interest of public health and humanity. The city does not willingly discriminate against consumptives in her charity, or in her efforts to control infectious diseases, but, as a matter of fact, in practice it does. The city furnishes hospital accommodations and care for smallpox, scarlet fever, diphtheria, measles and consumption. For the first four diseases the city provides 450 beds and up-to-date, wise and paying provision, and from these four diseases we get an annual mortality of 3.21% of the total mortality. For consumption the city provides 40 beds, and gets a yearly mortality of no less than 11.33% of the total mortality. This number of beds for consumption is not equal to the demand for even the most serious and helpless cases, while the less severe cases cannot be considered at all for hospital care. It must be evident to all that an infectious disease whose annual deaths amount to 11.33% of our total mortality should have hospital provision for all such cases as cannot otherwise be cared for with safety to the public. The Board of Health does not desire to further embarrass the financial condition of the city, or those by whom hospital provision must be decided. It seeks only to present facts as they appear to us, and to urge the importance of their early consideration by the Mayor and City Council."

DR. FREDERICK I. KNIGHT said: Is is well for us at this time to consider what is our greatest need in this city for carrying on the warfare against consumption. We have sanatoria to which we can send incipient cases, and dispensaries and an association to look after those living at home, but a great need remains only slightly provided for, *viz.:* a hospital for chronic cases. We do not seek to justify our claim of the need of a hospital for chronics on humanitarian grounds alone. Let us look for a moment at the mode of infection. When the bacilli are so universally present, what determines infection? The number and virulence of the germs on the one hand, and the receptivity of the patient on the other. Improved hygiene of the non-infected had already begun to improve the mortality from consumption before the discovery of the bacillus led to the struggle of recent years. A hospital for the reception of all consumptive patients who cannot be properly cared for at home not only removes a source of infection, but allows the remainder of the family, as yet unaffected, to be fortified against it, instead of being made more susceptible by an exhausting attendance upon the sick; and in our crusade against the disease much more attention than has been should be paid to the members of the family as yet apparently unaffected.

As many of the gentlemen here are aware, we made an effort several years ago to secure the Marcella Street Home, already owned by the city and unoccupied, for the purpose, but failed owing principally to the opposition of the neighborhood. The City Council, however, appropriated one hundred and fifty thousand dollars, to be raised by a special loan, for the establishment of such a hospital, the site to be determined later. This bill failed to obtain the necessary approval of the Mayor on economic grounds. It may be proper in this connection to say a word about the possible danger of such an institution to the neighborhood. I think the profession would be pretty unanimous in the opinion that from a properly managed hospital no danger exists to the neighborhood. As a matter of fact, the mortality from consumption in the villages of Goerbersdorf, where a sanatorium was established in 1859, and in Falkenstein, where one was established in 1877 has diminished one third since those dates. This has been attributed largely to the educational influence of the sanatorium. In fact at Goerbersdorf, the results are even better, as the total mortality from consumption has diminished one third while the population has doubled.

It seems to me that a hospital for chronic cases should be a city rather than a state institution —

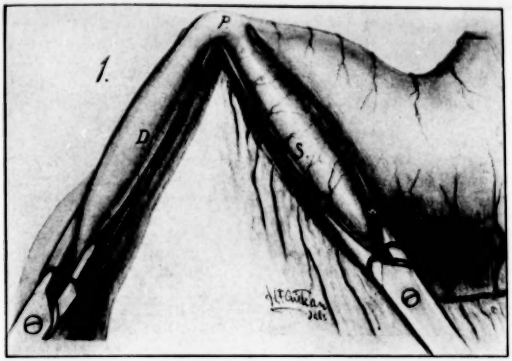

FIG. 1. Note application of clamps. On the stomach they are placed parallel with the greater curvature, thus controlling the hemorrhage from the vessels which are seen crossing line of future incision. Inner jaws of both clamps touch at the pyloric angle. When the handles are brought together, the pyloric angle (P) is put on the stretch. It can be seen that the use of guides is unnecessary to make the folds lie side by side.

FIG. 2. Clamps now side by side. Folds approximated by a continuous sero-muscular stitch. Stomach incision to mucous membrane; duodenum then opened freely to pyloric angle. Scissors now cutting out redundant mucous membrane at dotted line. The next step is to sew X to X, beginning at the pyloric end of the tongue.

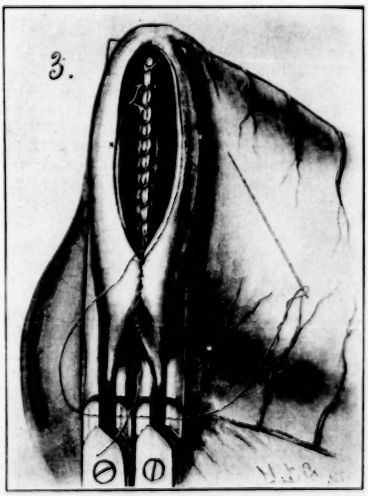

FIG. 3. Tongue now closed over by continuous stitch which has turned corner to finish front of suture, bringing X to X. (T) sewed over tongue. The line of suture is finally buried by a sero-muscular stitch.

that every city and town should have some accommodation for such cases.

One word in regard to expense. If the sanatorium for incipient cases is an economy, as is certainly believed by the German Insurance companies who have erected sanatoria for the care of their risks who become tuberculous, how much more of an economy will it be to make provision for the care of the advanced cases, which directly and especially indirectly cause the infection of so many others!

DR. DURGIN: The account given by Dr. Brannan of the work done in New York for the relief and control of consumptives is both interesting and instructive. It is plain to see that there is not only more consumption but more available money in New York than in Boston. They began their work earlier, are better provided with hospitals, and have done more work with the consumptive in New York than we have in Boston. The methods in use there and here do not differ very much. We require physicians to report their cases, but so far, the cases reported are but little in excess of the reported deaths. We shall hope for more complete reports in the immediate future. We remove to the hospital only the most helpless and serious cases, owing to the lack of hospital accommodations. We make forcible removals when necessary. We send circulars of information to the family of the patient through the attending physician. We disinfect after all removals and after deaths from this cause, at the expense of the city. We keep sputum outfits at about fifty different stations in the city for the accommodation of physicians, and collect, examine and report the results to the physicians daily. We have sent from the public schools cases of tuberculosis found by the medical inspectors of schools for the last ten years. We prohibit spitting in public conveyances, stations, buildings, halls, markets, churches and theaters, and on steps or sidewalks immediately connected with such public places. We are seriously in need of more hospital accommodations for consumptives. The deaths from consumption in Boston equal 11.33% of our total mortality, for which we have but forty beds. The deaths from smallpox, diphtheria, scarlet fever and measles combined, constitute but 3.21% of the total mortality, and for which we have 450 beds. We need immediately an increase of not less than two hundred beds for consumptives. This need is clearly recognized by the Mayor and City Council, who have expressed their desire to meet the demand as soon as the financial condition of the city will warrant the necessary outlay. It may be said, by way of encouragement, that the deaths from consumption in Boston have decreased from 40.08 per 10,000 living, in 1886, to 20.42 per 10,000 living, in 1903, or nearly 50% decrease in seventeen years.

IMPROVED TECHNIC FOR FINNEY'S GASTRO-DUODENOSTOMY.*

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THIS operation was first described by J. M. T. Finney of Baltimore.[1] It is designed to relieve non-malignant obstruction at the pyloric end of the stomach. Finney's original technic was devised before the importance of clamps was recognized, and the adaptation of this feature to the old method has been but slowly accomplished.

* Second papers of the series.
[1] Bull. Johns Hopkins Hospital, July, 1902.

There are, as yet, no reported experimental data upon which to base a conviction as to the superiority of this gastroduodenostomy over a gastrojejunostomy. Later research will decide the relative merits of these two operations. However, the Finney operation is regarded by surgeons with growing favor, and the writer believes that any real improvements in its technic will be welcome.

Attention is to be called to the following details which differ from those in present use: (1) Placing of clamps. (2) Opening of stomach and duodenum, trimming mucous membrane. (3) Omission of guide stitches.

TECHNIC.

The Finney gastroduodenostomy is done in the same way as an ordinary gastro-enterostomy, except that the cuts into the two viscera are connected at one end. The continuity of the incisions is made possible by their situation close to the pyloric sphincter.

The human duodenum is bound down to the posterior abdominal wall, except for two inches at its beginning, and for this reason cannot be brought into natural contact with the stomach.

The first step, therefore, consists in freeing the duodenum from the posterior abdominal wall by blunt dissection until it can be drawn out and held to the greater curvature of the stomach. To accomplish this the duodenum is approached from the outside and is raised from its posterior attachment for a distance of two inches.

The second problem to be met is the application of clamps. It is customary to place them directly across the pylorus on the stomach side, thus making it necessary to introduce one blade beneath the stomach into the lesser peritoneal cavity. The clamping of the duodenum is also at a right angle to the lumen. The above method of placing the clamps for this operation is poorly thought out, because in each case the blades cross the organs parallel to the blood vessels.

The incision into the stomach will cut vessels which arise from the greater curvature, and a clamp placed directly across the pylorus will not control this bleeding in the least. The most satisfactory method of applying the clamps is the following:

A fold of the anterior wall of the stomach is picked up 3 to 4 inches long, parallel to and about ½ inch from the greater curvature. The ends of the clamp are not freed, but are pushed up tightly until the inner jaw rests against the pyloric sphincter, about ¼ to ½ inch below the free edge of the fold, where they are made fast.

The duodenal clamp encloses a similar fold, as it goes obliquely across the bowel from the free edge to the pylorus and is pushed up until its inner jaw touches that of the stomach clamp, where it is fastened. The handles of the clamps are next brought together, and the pyloric angle thus put on the stretch, incision can now be made into any part of the area held by clamps or into the pyloric angle without hemorrhage.

When the clamps are placed carefully accord-

ing to this method, the duodenum and the stomach folds lie neatly side by side, thus obviating the necessity of guides.

The two folds are fastened together with a continuous sero-muscular stitch. It is better to start this stitch at the pyloric angle to make sure that this point comes at the apex of the tongue to be cut out later.

As mentioned before, the incisions are like those of a gastrojejunostomy, except that they are united at one end. The stomach incision is made first, and is carried down until the mucous membrane pouches freely between the cut muscular walls. The stomach is then left and the duodenum opened until the mucous membrane of the stomach is met at the pyloric angle. Before going further it is occasionally necessary to trim off the mucous membrane from the edges of the duodenal incision. The pouching mucous membrane is finally removed from the stomach by cutting with scissors close to one muscular edge, returning on the other side. The completed incision leaves a tongue-like process made up half of gastric and half of intestinal walls.

After the incisions have been made the exploration of the pyloric portion is easily accomplished by loosening without withdrawing the stomach clamp. After inspection the jaws can be fastened again and the suture continued.

The two edges of the tongue are next sewed together with a continuous through and through chromic stitch, which starts from the apex of the tongue and goes across to its base. At this point it is interrupted with a tie before continuing the suture across over the front. When operating with the clamps placed according to the older method, the sewed over tongue protrudes up into the wound and must be buried with guide stitches before the through and through stitch can be carried over the front. No such difficulty is met with correctly applied clamps, for the outer edges tie well for accurate apposition. When within an inch from the pylorus and the suture over the front is nearly completed, the clamps are loosened to relieve the tension and allow the last few stitches to be placed.

The clamps are now removed altogether, and the suture buried with a sero-muscular stitch. The closing in of the inaccessible pyloric angle is made easy by the introduction of the writer's mattress stitch. The rest of the sero-muscular stitch may be continuous.

CARDIAC COLLAPSE DURING EXAMINATION OF A POST-PHARYNGEAL ABSCESS; INCISION; CIRCULATION RE-ESTABLISHED AND MAINTAINED FOR FOUR HOURS BY MASSAGE OF THE HEART; DEATH.

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FOR years physiologists have demonstrated that the oxygenation of the blood may be carried on and automatic respiration re-established by artificial means, which have come into daily use clinically for the resuscitation of patients. It has been equally well known that under certain conditions pulsation may be re-established in the arrested heart of animals, both in situ and even some hours after its removal from the body. Recent investigators in the field of surgical physiology have endeavored to develop a rational method based on these and similar experiments for restoring to life patients whose vital functions have been suddenly arrested either by traumatic or surgical shock or by mechanical conditions obstructing these functions. Such a method depends chiefly on the restoration of respiration and of cardiac pulsation and the maintenance of the blood-pressure at an approximately normal level. Clinical experience is still scanty, however, and the following case is reported with a view of adding to the evidence in this important field.

The patient, Eleanor S., three years of age, was brought to the Children's Hospital, on Feb. 23, 1904, with a history of about two weeks' duration of illness, feverishness and anorexia. There was complaint of sore throat and difficulty in swallowing, and the neck became swollen, chiefly on the right side. The symptoms became progressively worse, the child became practically unable to eat or to talk and during the last few days respiration had become labored. There had been no pre-existing symptoms suggestive of caries of the cervical vertebræ.

Physical examination showed a fairly developed and poorly nourished child, pale, dyspneic, considerably exhausted, with a pulse of 140, respirations 46, and slight cyanosis of the finger-tips and lips. Heart, negative; lungs, negative, except for shallow respiration and a few moist rales, most marked at the bases; abdomen, normal. The neck showed a diffuse fullness on the right, not red or tender and without perceptible fluctuation. The throat showed a swelling obstructing the oropharynx, but the struggles of the child made it both impossible and inadvisable to determine exactly its origin, whether from the tonsils and soft palate or from the pharyngeal wall.

The gravity of the situation was explained to the mother and her consent to incision obtained. It was found impossible to reason with or gain the confidence of the child, so the necessary manipulations were carried out by force, but as gently as possible. The arms were confined by a blanket swathe and the child held in a nurse's lap in the usual way. No anesthetic was employed. The child struggled ceaselessly. The introduction of the gag caused such choking and cyanosis that it was withdrawn, with immediate relief to the symptoms of asphyxiation. At a favorable moment the gag was again placed in position and the finger and knife introduced, but a point of fluctuation was not felt at once. The condition suddenly again became alarming and breathing ceased. The child was instantly laid on the table and artificial respiration begun. No pulse could be felt at the wrist, no cardiac sounds could be heard with the stethoscope, normal respiration had absolutely ceased; the face, finger-tips and mucous membranes were moderately cyanotic, the pupils dilated and unresponsive and the cornea insensitive. The picture was that of death. This occurred at 6.20 P.M. With the patient in the Rose-Trendelenburg position the abscess, which proved to be retropharyngeal, was opened and evacuated. The amount of air which was entering the lungs, as shown by stethoscopic examination, was not satisfactory, so a large

No. 28 French soft rubber catheter was introduced through the mouth into the trachea and the expansion of the chest by manipulation was supplemented by direct insufflation. No improvement followed; the moderate cyanosis was succeeded by extreme pallor and there was no evidence of any action of the heart. At once cardiac massage was begun by rhythmical pressure at the rate of sixty to the minute, over the third, fourth and fifth left costal cartilages, and this massage together with the artificial respiration was continued for four and one-half hours until further efforts were evidently useless. Throughout this time, the writer was aided by Dr. James S. Stone and house-officers and nurses. As rapidly as possible brandy and strychnine were injected directly into the heart, the legs were bandaged firmly from toes to groin, the abdomen manually compressed and heaters and blankets applied, without interruption of the respiration or massage.

Coincident with these measures and apparently directly following the pressure over the heart, the color returned to the lips and face, and capillary circulation could be distinctly demonstrated by the blanching and return of color after pressure on the cheeks, tongue, lips and finger nails. No heart sounds were heard at any time with the stethoscope, but feeble pulsations were detected in the radial and femoral arteries always immediately following the pressure on the heart; these pulsations were never felt when the massage was interrupted for a moment. The pupils remained dilated and without reaction; one observer thought that he detected a very slight movement of the eye-ball, but this was not verified. About this time oxygen gas under considerable pressure was forced into the lungs through the catheter, but the color in the mucous membranes became worse at once, so insufflation by the lungs of the assistant was again resorted to. At 8.30 P.M. about one pint of normal salt solution was infused into the median cephalic vein with transitory improvement of the color and of the artificial pulse. There was sluggish capillary oozing from the subcutaneous tissue in this incision and marked hemorrhage from the vein. The blood was but slightly darker than normal. At about this time mx of Parke, Davis' solution of adrenalin chloride was injected into the pectoral muscle, and soon after repeated without noticeable effect of any kind. Constant friction of the body surfaces toward the heart was kept up together with occasional injections of the usual stimulants. At nine o'clock the tube was accidentally pulled out of the trachea, and its re-insertion being difficult on account of the beginning rigidity of the jaw, tracheotomy was performed and the insufflation continued. This wound bled less actively than the other. No arterial bleeding followed either incision, but it is probable that no arteries were cut. The color now began to fail steadily and the skin became mottled in appearance, although the capillary circulation could still be demonstrated in the lips. Finally, the injection of stimulants into the spinal canal was determined on, but in turning the body over it was found that rigor mortis was well established in the legs, and further efforts at resuscitation were reluctantly abandoned, four and one-half hours after they were begun.

Death was evidently caused by cardiac collapse due to shock, in a patient whose condition of extreme exhaustion made the necessary manipulations in preparing to open the abscess a source of grave danger. Death was not due to suffocation; there was no inhalation of pus, as the abscess was not evacuated until after efforts at resuscitation had been begun. In death by asphyxiation the action of the heart continues for a time after the cessation of the respiration; in this case stethoscopic examination failed to reveal any action of the heart from the very beginning. There was no serious mechanical obstruction to respiration and hence no indication for tracheotomy; but a rubber tube was introduced into the larynx to supplement the usual method of artificial respiration by direct insufflation, which proved very satisfactory in inflating the lungs and in facilitating the employment of oxygen. Later, a tracheotomy was done when the onset of rigor mortis made the re-insertion of the tube through the mouth difficult.

Although success had been scarcely hoped for at first, the final failure to restore life, at least for a time was very disappointing. To the observers it seemed beyond controversy: (1) that the circulation of the blood was restored and maintained; (2) that the blood was fairly well oxygenated. Add to this that the body warmth was artificially kept up, stimulants supplied and efforts made to raise the blood-pressure to an efficient level, and it seems as though the conditions necessary for the existence of life were present. It is tempting to invoke the theory of the " vital spark," and perhaps the simile is not so very far-fetched. The spark simply raises the temperature of the combustible to the point of ignition and combustion ensues; in the same way the oxygenated blood must be supplied to the nerve cells in the vital centers in an amount sufficient to excite them and cause them to discharge their functions, in order to produce the phenomena of life. Granting that the heart is keeping the blood in circulation, means must be found to maintain a proper level of blood-pressure, and this is best accomplished, as shown by the researches of Crile and other investigators, by increasing the peripheral resistance. Crile [1] obtains this by the use of adrenalin, which directly stimulates the walls of the blood-vessels and causes them to contract, and by the employment of his inflated pneumatic rubber suit, which offers a mechanical resistance which can be regulated at will. In the case above reported the attempt was made to secure this mechanical resistance by bandaging firmly the extremities and compressing the abdomen.

Keen,[2] in a recent article, gives twenty-seven cases collected from the literature where massage of the heart was employed in efforts at resuscitation of the human subject, with three successful cases and twenty-four failures, and adds an unsuccessful case of his own. Cohen [3] has also reported a successful case. In several cases which ultimately failed life was restored for periods up to twenty-four hours.

Maag [4] reports a case where a patient collapsed under chloroform; fifteen minutes after apparent death the thorax was opened and direct massage of the heart was performed, the pulsations were restored for some hours, later failed and were again restored by massage, but death finally ensued after twelve hours.

Sick [5] reports a case of collapse under chloroform during an operation for tubercular peritonitis in a boy; three-quarters of an hour after the heart had ceased to beat it was exposed by incision, and after fifteen minutes' massage pulsation and respiration became re-established and consciousness returned; the boy lived twenty-four hours but finally collapsed and died with great dyspnea.

In a case reported by Starling and Lane,[6] collapse occurred during abdominal section; the heart was squeezed through the diaphragm once or twice and pulsation returned, artificial respiration was continued for twelve minutes and then became automatic, and recovery ensued.

Crile, in one case, nine minutes after death, employed pressure on the chest, artificial respiration, adrenalin and the rubber suit: the heart began to pulsate and continued for twenty-eight minutes but respiration was not re-established. In a second case, eight minutes after death, the same means were employed and the functions of both heart and lungs re-established; operation was done for the relief of a depressed fracture of the skull, during which the patient moved his head, but sudden death occurred after thirty-four minutes had elapsed. In a third case during an operation for tumor of the brain the patient collapsed and the usual measures with the substitution of the Fell-O'Dwyer apparatus for artificial respiration were at once begun. In nine minutes the heart began to beat and in seventeen minutes respiration was re-established, but death occurred two hours later. In a fourth case, during excision of an exophthalmic goitre there was sudden cessation of the heart and respiration. Crile at once inflated the rubber suit which had been put on as a precautionary measure, and began to make pressure over the heart: in six minutes the functions were restored and complete recovery took place.

In Cohen's case an operation was done on an otherwise healthy woman for the removal of an ovarian cyst, under chloroform. Fifteen minutes after the operation had begun sudden collapse occurred with cessation of heart and respiration. After vainly trying artificial respiration for two minutes the operator introduced one hand into the abdomen and began bimanual massage of the heart; in thirty seconds the heart began to beat; in one minute it was pulsating 80 to the minute, and in two minutes respiration became normal and the operation was brought to a successful issue, with ultimate recovery.

The writer's case differs from most others reported in that automatic cardiac pulsation was not re-established, but apparently blood was pumped through the vascular system by the rhythmical mechanical pressure on the heart, much after the fashion of a rubber compression syringe with inlet and outlet valves. Doubtless exposure of the heart by incision and direct massage would be a more efficient method, but in a child the costal cartilages are so elastic and yielding that the heart can be strongly compressed without difficulty between them and the vertebral column. Indeed, in some cases reported such pressure was sufficient in adults. In the writer's case the occasionally felt radial and femoral pulse coincided exactly with the pressure on the heart, the capillary circulation in the face and lips and the bleeding from the incisions in the arm and neck proved the existence of circulation in the smaller vessels and capillaries, and the color of the blood and mucous membranes was evidence of a fair degree of oxidation. The blood pressure was without doubt very deficient, but probably a very important factor in the failure to restore even temporarily the vital functions was the extreme exhaustion of the patient before she applied for measures of relief. In most of the cases reported in the literature the patients were in a reasonable state of health before the collapse or traumatic shock which necessitated efforts for their resuscitation.

A limited experience at the Children's Hospital has afforded a vivid impression of the gravity of these cases of inflammatory conditions and abscesses of the throat in children. A somewhat similar case occurred soon after the one above reported. The patient, Stanley G., entered the hospital on May 25, 1904, with a history of sore throat and swelling of the neck for four weeks. Examination showed a fluctuating swelling on each side behind the angle of the jaw and a large mass bulging from the posterior wall of the pharynx. The condition was poor although the dyspnea was not extreme. Primary ether was given in Rose's position and the pharyngeal abscess incised by the house surgeon; collapse instantly ensued and respiration ceased, although apparently no pus was drawn into the respiratory passages. Cardiac pulsation could be faintly heard with the stethoscope, but the usual measures for resuscitation were unsuccessful until a hasty tracheotomy by the writer finally resulted in the re-establishment of the respiration. This patient again collapsed an hour later in the ward and was with difficulty revived. He was finally immobilized on a Bradford frame which was then inverted, so that the patient hung face downward with the head at a lower level than the feet. This position afforded drainage for the abscess cavity and for the respiratory passages and kept the blood in the vital centers, and the patient finally recovered. On March 7, 1904, another case came under the care of Dr. James S. Stone: the patient collapsed immediately after the incision of a retro-pharyngeal abscess and made a slow recovery only after vigorous measures for resuscitation.

Acute abscesses around the tonsil and soft palate usually run a short course and burst spontaneously or are opened in from three to five days. They may be serious owing to their tendency to extend downward and cause an inflammatory edema in the larynx, which may be rapidly fatal, but they are seldom accompanied by the extreme exhaustion which is seen in cases of acute retro-pharyngeal abscess. These are usually of longer duration, owing probably to their situation behind the dense pharyngeal aponeurosis, which retards

their progress to the surface and frequently determines their pointing externally behind the angle of the jaw. In six cases which occurred at the Children's Hospital between November and May, 1904, the duration varied between ten days and four weeks. Chronic, slowly accumulating "cold" abscesses due to cervical caries are not included, of course, in this category. The grave condition of exhaustion frequently seen in a patient with an acute or subacute retro-pharyngeal abscess is due to several factors: to the enforced starvation for many days, to sleeplessness, to toxemia, and to insufficient oxygenation of the blood in cases where the respiration is embarrassed. If now, preliminary to operative interference, the head is thrown back and the mouth held wide open, the tendency is for the base of the tongue and the posterior wall of the pharynx to become still more closely approximated, unless, indeed, the tongue is drawn strongly forward, which perhaps is neglected in the operator's effort to get a clear view. Thus a sudden temporarily complete asphyxiation may ensue, which, with the frenzied struggles of the unreasonable child, may result in cardiac collapse. Perhaps, also, the stimulation of the sensory terminations of the superior laryngeal nerve in the mouth and pharynx by the necessary manipulations may cause a reflex inhibition of the heart and respiration through the pneumogastric and sympathetic nerves, which contributes to the fatal result.

In cases similar to the one reported above, a preliminary tracheotomy would seem to be a conservative procedure. It could be quickly done under cocaine or even without anesthesia, and although the child's struggles might be exhausting they would, at least, not be accompanied by the element of suffocation. The incision of the abscess might then be deferred, if necessary, until the general condition had improved, or, if artificial respiration were required, the opportunity would be most favorable.

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Clinical Department.

A CASE OF ACUTE HEMORRHAGIC PANCREATITIS.

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Assistant Pathologist to Worcester City Hospital.

DIAGNOSIS, OPERATION, RECOVERY.

PATIENT, A. B., female, forty-eight years old, married. First seen by the writer Jan. 10, 1904, at her home, in answer to an urgent summons referred to him by Dr. J. M. B. Farnham.

Family history. — Born in Connecticut. Husband well, but has lived apart from patient for several years. One son, twenty-seven, well. Causes of grandparents' death not known. Father died of acute diabetes following an attack of "grippe." Mother is well, except for varicose ulcers of leg. One brother subject to malaria and severe dyspeptic attacks. Three sisters died in youth of typhoid and another of "bone-cancer." Two sisters are living at present, the elder, forty-nine years old, is a diabetic of several months' standing.[1] The younger, forty-five years old, was operated on four years ago for uterine trouble, and has been in delicate health since.

Personal history. — Typhoid at age of sixteen. Two miscarriages, the more recent being fifteen years ago. Menstruation has been irregular since, varying from three to six weeks. Has been subject to frequent attacks of indigestion and epigastric pain for many years. Is habitually constipated. Sour foods in particular are poorly borne. Four years ago was treated by a stomach specialist for chronic gastritis, and for a few days was fed by rectum because of nausea and vomiting. Later was sent to hospital, where she was kept on a liquid diet and gradually improved. There she was told that she had a small uterine fibroid. Diphtheria one year ago. Four months ago had a sudden attack of severe epigastric pain with vomiting and marked local tenderness. Was sick for three weeks, then resumed her customary household duties. The epigastric soreness persisted more or less, however, and from time to time she has been treated for it since.

Present illness. — The patient felt as well as usual this morning until nine o'clock, when she was seized by violent pain in the epigastrium radiating to left hypochondrium and scapular region. Vomiting and retching was constant, but without relief of pain. At first, she raised partially digested food, but after that only an occasional mouthful of greenish fluid. No *blood* has been raised. When seen, twenty minutes after the onset, she was upon her knees on the floor, straining violently in effort to vomit, but raising nothing. She was very pale, beads of perspiration stood upon her forehead, and the radial pulse was thread-like and barely perceptible. Morphine sulphate $\frac{1}{4}$ gr. was immediately given hypodermically, and patient placed on the bed. An additional $\frac{1}{4}$ gr. brought slight relief.

Physical examination. — Well developed and fairly nourished. Pulse small and compressible, 120 per minute. Temperature, 95.5° F. Skin pale, moist and cool. Pupils equal and now contracted. Tongue lightly coated. Heart sounds rapid and feeble. No murmurs. No cardiac enlargement or displacement. Lungs negative. Upper limit of liver dullness at sixth rib, lower not determined because of tenderness. There is extreme tenderness over entire epigastrium, extending over left hypochondrium around the costal margin to the back, where there is a point of especial tenderness to the left of the twelfth dorsal vertebra. Palpation of upper abdomen unsatisfactory because of muscular spasm.

Blood. — A leucocyte count made two hours after onset of symptoms showed 37,000 per cubic millimeter.

Urine. — About 120 cc. passed later in the day. Analysis as follows: Pale; acid; specific gravity, 1,028; albumin, a large trace; sugar, absent; sediment, considerable, showing under the microscope numerous hyaline and finely granular casts, a few coarsely granular casts, very little free fat, a few large and small round cells, some of which are fatty, and numerous squamous epithelial cells.

During the day the morphine was repeated as needed. The pulse remaining of poor quality, $\frac{1}{30}$ gr. of strychnine sulphate was given every four hours. Calomel in $\frac{1}{10}$ gr. doses was ordered hourly during the night. Sips of water were taken from time to

[1] Personal observation.

time, but no diet allowed. The abdomen distended moderately and the tenderness became more diffuse. The patient lay on the right side constantly, and dependent flank showed slight dullness to percussion. Evening temperature, 96.5° F.

Jan. 11, second day. Morning temperature, 96.3° F. Pulse, 120 per minute and of better character. Patient had less pain during the night, slept a little under the opiate, and is more comfortable this morning.

At ten A.M. a suds enema was given and in the effort to pass it the pain came on more severely than before. Three quarters of a grain of morphine, hypodermically, in a single dose, brought partial relief. From now on the abdomen distended rapidly and tenderness became general, with small areas especially marked, one such being just to the right of the umbilicus. There is dull tympany where percussion can be practiced.

During the day the pulse rate increased. and at 4.30 P.M. was barely perceptible at 140 per minute. Temperature, 97° F. Skin covered with cool perspiration. Respirations short and quick and patient manifests great anxiety. Operation had been advised earlier in the day and was now insisted upon. The patient was accordingly transferred to Worcester City Hospital where she arrived at 6 P.M. Pulse, at arrival, 152 per minute.

Operation. — Begun at 8 P.M. by Dr. L. F. Woodward, through whose courtesy the writer uses the following notes upon the case while the patient remained at the hospital:

Under light ether anesthesia a four-inch incision was made in the median line above the umbilicus. There was a considerable subcutaneous fat layer, although the patient is rather slight. Upon incising the peritoneum, several ounces of bloody fluid escaped. The incision was now enlarged downward passing to the left of the umbilicus, about a quart of bloody fluid, containing many fat droplets, escaping. The omentum was heavily laden with fat, and thickly dotted over with small, circular, flattened, white areas averaging 2 mm. in diameter. Upon sponging out the greater omental cavity, the blood was seen to well up from the neighborhood of the foramen of Winslow. Hasty exploration of the anterior stomach wall and gall bladder was negative. Patient being now in an alarming condition, the abdomen was hastily closed with mass sutures, irrigation with hot salt solution being kept up until the last few sutures were tied. In the meantime, two quarts of salt solution was given intravenously. Patent was taken to the recovery-room in poor condition.

For two days following the operation, patient remained in a critical condition, vomiting frequently very small quantities of dark greenish fluid and complaining of pain in upper abdomen. Small amounts of milk and lime water were taken, the vomiting not appearing to be excited by it. Blood-count on first day after operation showed 24,000 whites.

On the third day, bowels were moved by ox-gall enema and pulse had improved decidedly. Catheterized specimen of urine at this time gave the following analysis: High color; acid; specific gravity, 1,028; slightest possible trace of albumin; 2.38% of sugar. Sediment showed rare hyalin and finely granular casts, few leucocytes and large round cells. No blood.

On the fourth day there was but a trace of sugar. Occasional eructations of gas and fluid occurred.

Stitches were removed on the tenth day, the wound having healed by first intention. Liquid nourishment still continued because of nausea. Casts and all traces of sugar have disappeared from the urine.

Twenty-third day. Sat up in bed. Has been taking light solid and semi-solid diet without trouble. Complains still of soreness in left hypochondrium and there is a faint yellowish tinge to sclerotics. On palpation of abdomen there is resistance above umbilicus on both sides of scar, but no definite mass.

Pathological report on section of omentum cut to show whitish areas is: "Fat necrosis of omentum." (Dr. F. H. Baker.)

Thirtieth day, Feb. 10, 1904, weight 101 pounds, White count, 5,200. Hemoglobin, 85%.

April 21, 1904. Patient has gradually improved since leaving the hospital. Complains a little of fine darting pains in neighborhood of scar, and is somewhat constipated. Gets out of doors frequently. Stools are colored normally and yellowish tint has long since faded from sclerotics. There has been considerable gain in weight. Repeated examinations of the urine have failed to show recurrence of either albumin or glycosuria.

DISCUSSION.

The case was a most interesting one from the standpoint of differential diagnosis, the complicated anatomy of the upper abdomen admitting several possibilities, and the striking severity of the initial symptoms unquestionably located the trouble in that region.

The remarkable elevation of the white-count occurring but two hours after the onset of symptoms practically ruled out uncomplicated biliary or renal colic and argued strongly against intestinal obstruction in which the leucocytosis develops more gradually and rarely attains so high a degree unless peritonitis has supervened. The persistent and stationary character of the pain as well as its location was against the two former diseases. Perforation of an ulcer of the posterior stomach wall, pylorus or duodenum or acute pancreatitis were the most probable conditions. The history of frequent attacks of epigastric pain with nausea and vomiting was consistent with any of them but absence of hematemesis, prior symptoms of hyperacidity or the characteristic increase of pain with the ingestion of food and beginning of the digestive process were all against a gastric ulcer. To the absence of tympany with obliteration of liver dullness but little importance could be ascribed for, in the case of duodenal ulcer, the perforation could be retroperitoneal and if of the posterior gastric wall, the gas might be retained in the lesser omental cavity. The association of high leucocytosis with subnormal temperature would be unusual in either perforative lesion, for in such cases the white count depends upon the inflammatory reaction and is associated with rise of temperature.

The family tendency to diabetes was suggestive of, the repeated attacks of epigastric pain and nausea were consistent with, the sudden terrific onset, the location of the pain and its persistent tearing quality, the extreme prostration with subnormal temperature, the severe retching, and later the dullness in the dependent flank were well nigh typical of acute hemorrhagic pancreatitis to which diagnosis the writer committed himself on the evening of the first day.

The white-count of 37,000 is, so far as the writer is aware, the largest reported in cases known to be acute pancreatitis although 19,000 to 24,000 have been observed. Should experience prove this early leucocytosis to be a constant feature of the disease its diagnostic value can hardly be overestimated.

Unfortunately, the operation did not absolutely settle the question of diagnosis as the pancreas itself was not exposed. It did, however, afford strong confirmatory evidence in the widespread fat necrosis with free blood in the peritoneal cavity, two conditions which are only associated in pancreatic disease. The later appearance of glycosuria though transitory is best explained by the assumption of a pancreatic lesion.

In the light of the favorable outcome of the case, question may perhaps be raised as to the expediency of the operation. Obviously, all that it accomplished was the removal of the bloody fluid and clots from the abdomen where if, as is likely, it contained enzymes of the pancreatic secretion it would doubtless have done harm. Evidently the bleeding had ceased sometime before the operation, and that further hemorrhage did not take place was a matter of good fortune hardly attributable to the operation. It may therefore be fairly urged that non-operative treatment would have had a like favorable result. To the writer's mind, however, operation was positively indicated as a diagnostic procedure. Indeed, it should have been resorted to several hours sooner for had a perforation, which was the most probable alternate diagnosis, existed, the best chance for the patient lay in timely operation.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY HERBERT L. BURRELL, M.D., BOSTON, AND H. W. CUSHING, M.D., BOSTON.

INHALATION OF GASOLINE VAPORS.

Sollmann [1] in an article on this subject gives the following conclusions: Gasoline or (petroleum ether) when inhaled has a comparatively slight anesthetic action. The anesthesia is, however, very dangerous, since the substance also produces convulsions, weakening of the heart, vasomoter depression and paralysis of the respiration. The kidneys are also irritated. The effects are produced very promptly and recovery under artificial respiration is also prompt. The cause of the convulsions is not known. They do not occur in frogs.

PARAFFIN INJECTION.

This subject, which during the past few years has aroused considerable attention, has been exhaustively treated in a monograph of one hundred and sixty-six pages by A. E. Stein.[3] He discusses the history, chemistry, pharmacology and toxicology of paraffin; the danger attending its use; the anatomical changes following its injection into animal tissues; the technique of injection; finally, whether hard or soft paraffin or vaseline should be used. He recommends for use a mixture of vaseline and hard paraffin having a melting point of 42° to 43°. This mixture is "plastic" as vaseline, and has also the stability of hard paraffin. The formation of emboli results from injection of that material in a liquid state. When the mixture is so firm that it escapes from the needle point as a fine thread the breaking loose of fine particles which can escape into the blood current is impossible. This requires an especially constructed syringe.

A special chapter is devoted to the employment of this mixture in different organs and tissues and the special technique. This is abundantly illustrated; two hundred and twenty-five bibliographical references complete the work.

ABLATION OF BENIGN MAMMARY TUMORS.

H. Morestin [2] advocates the following method for the removal of benign, movable, sharply-circumscribed tumors of the breast. The advantage is the inconspicuous operation scar resulting. The technique consists of making the skin incision in the axilla along the anterior border of the hair growth; then through this opening, to tunnel through the subcutaneous fat to the tumor, which in all of the writer's cases was in the upper half of the breast and generally in the outer quadrant. When reached, the capsule was opened with scissors, the tumor seized with forceps, enucleated and removed. The canal was drained and the wound sutured. Guinard recommends for larger tumors than can be removed as above an incision in the submammary sulcus.

TREATMENT OF PENETRATING WOUNDS OF THE ABDOMEN.

Harris [4] in concluding his paper read before the Chicago Surgical Society in December, 1903, emphasizes the following points:

(1) In penetrating wounds of the abdomen, there are absolutely no known symptoms which indicate injury to any of the viscera except those noted above in connection with the urinary tract, stomach and, occasionally, the lower bowel.

(2) Except those relating to general shock, all symptoms following such wounds indicate either internal hemorrhage or peritonitis.

(3) To wait for symptoms of perforation of the intestine means to wait until peritonitis has developed, therefore,

(4) Every bullet or stab wound which penetrates the abdominal cavity should be operated on at the earliest possible moment in order to anticipate the advent of peritonitis.

(5) No time should be wasted in attempting to demonstrate the presence or absence of intestinal perforation by such means as the rectal

insufflation of gases or vapors or the analysis of recollected intraperitoneally injected air or liquids.

(6) It is essential to systematically examine the entire gastro-intestinal canal in all cases, regardless of the point of entrance of the wounding body.

(7) Whenever the alimentary canal has been perforated, suitable drains (the author prefers the so-called cigarette drains) should be placed either through the operative incisions or counter-incisions, as may appear best suited to the individual case.

THE RESULT OF GAUZE LEFT IN THE ABDOMINAL CAVITY.

H. Riese [5] reports the results of his observations of the effects of gauze as sponges left in the abdomen after intra-abdominal operations. He quotes several interesting cases. He concludes that either peritonitis results, or that the gauze passes into the intestine with varying results (the one case caused intestinal obstruction); or is thrown out by an abscess of the abdominal wall or Douglass pouch; or is encysted.

He has demonstrated by animal experimentation the passage of such gauze compresses into the intestine. He presented data relating to the length of time up to twelve years that such a foreign body had remained in the abdomen. In his own experience such a foreign body had been found twice in nine hundred laparotomies. Neugebauer had observed it ten times in one thousand cases; Mikulicz had not observed it.

ACUTE INFECTIVE GANGRENOUS PROCESSES (NECROSES) OF THE ALIMENTARY TRACT.

Edred M. Corner: [6] The first of the Erasmus Wilson Lectures was devoted to this subject and an excellent presentation of it is given. Corner summarizes the chief points which an examination of the records of examples of obstruction of the mesenteric vessels has shown in the following tables:

Clinical Table.

(1) It is most common in men past middle life.

(2) It is most common secondary to valvular disease of the heart, especially mitral disease.

(3) The onset is generally sudden with symptoms of peritonism.

(4) In one class the picture is one of intestinal obstruction or peritonitis due to appendicitis, or the perforation of a gastric ulcer.

(5) There is also another class in which blood is passed per rectum and which signifies infarction of the bowel.

(6) Subacute and chronic cases are seen as well as the most acute.

(7) In some cases it is most probably spontaneously recovered from, especially if only a small area of the bowel is rendered bloodless.

Pathological Table.

(1) For a constant situation of the embolus in the superior mesenteric artery, as in the main trunk, all varieties of clinical cases have been reported from the most acute and fulminating to cases like Professor Chiene's that recover apparently without obvious symptoms.

(2) With a precisely similar lesion some subjects die in thirty hours and some not for from twelve to twenty days.

(3) Gangrene of the gut has been noticed to occur within thirty hours and sometimes not after twenty-two days.

(4) A collateral circulation can be formed in slowly developing cases of visceral vascular obstruction, *e. g.*, Professor Chiene's case. And even in more acute instances an attempt at a collateral circulation is made.

(5) The superior mesenteric artery is almost invariably picked out for the site of the embolus in fatal cases, possibly because it will always cause symptoms and almost always death, which need not occur with involvement of the inferior mesenteric and its branches or those of the celiac axis.

(6) The explanation of the individual variations, clinical and pathological, seems to depend upon the pathogenicity of the bacteria present in the gut as to the severity, or other characters of the cases. On the bacteriology of this affection there is no work done.

DIET AFTER STOMACH AND INTESTINAL OPERATIONS.

Ehrlich (Stettin) attributes the frequent deaths from exhaustion after operations on the stomach and intestines to the usual light liquid diet, and has of late recommended a more vigorous diet.[7] He presents, as corroborating his opinion, his experience in twelve cases of intestinal and gastric suture in which such a diet was well borne. The directions are, for the day of operation, tea, red wine and "Schleimsuppe." On the following day, calf-thymus in bouillon; on the next day, chopped meat, potato puree, cocoa, soft eggs, etc. In twelve cases there were three deaths, one from *circulus vitiosus*, one from peritonitis, one from *angina Ludovici*.

INTRAHEPATIC CHOLELITHIASIS.

E. Beer [8] found the above condition 6 times in 72 cases of cholelithiasis. In 5 cases calculi, and in 1 case sand appeared in the gall ducts in the liver. These observations were made in the pathological institute in Vienna. He thinks that calculi can occasionally wander into the right or left hepatic duct, and when there is occlusion of the common duct enter the larger intrahepatic gall ducts, but he cannot believe that these conditions can explain all these cases of intrahepatic calculi. Calculi of such origin must have the same shape and composition as those found in the gall bladder. Such conditions did not correspond with the writer's observations.

In all cases in which intrahepatic calculi were found there was also an extra hepatic cholelithiasis. Also only those cases of cholelithiasis showed intrahepatic stone formation in which there was occlusion of the common duct by calculus or where such occlusion had existed

once and a secondary cholangitis was found. Occlusion of the common duct by tumors or at the same time the ordinary cholelithiasis showed no intrahepatic concretions. It therefore seems that for the formation of intrahepatic calculi there is some unknown element necessary besides obstruction and cholangitis. These intrahepatic calculi can wander into the gall bladder and develop into larger stones. The same can occur in the common duct; or even a small stone in the common duct can cause much trouble. If it remains in the liver it can cause inflammation or even abscess.

THE REMOVAL OF BILIARY CALCULI FROM THE DUODENAL END OF THE CHOLEDOCHUS.

Kehr [9] has described a method of removing small fragments of calculi from the retroduodenal portion of the common duct which he has recently employed satisfactorily in three cases. It is as follows: After removal of the gall bladder the cystic and common duct was opened and an effort made to remove the calculi by digital compression and proper forceps. This failing, the duodenum was opened, the papilla was exposed, incised and the stone removed. The blades of a pair of forceps were then inserted into the duct and passed upward and out through the former incision in its wall. The separated blades now grasped a small piece of gauze which was dragged down the duct by the withdrawal of the closed forceps, through the papilla into the duodenum carrying with it in its folds dry, small calculi, or crushed fragments that had escaped from efforts to clear the duct. In this way the duct was satisfactorily cleared. The duct was then drained by a small rubber tube. The duodenum sutured and the suture covered by omentum; the common and hepatic duct drained and the wound packed. All these three cases recovered. Kehr claims that by this method he can remove soft calculi which cannot be felt by palpation, sounds or forceps. Also that a trans-duodenal choledochotomy with this clearing out with gauze and a clean suture of the duodenum covered by an omental strip is a thorough and sure operation which, up to the present time, has yielded him very good results.

ABDOMINAL DECUBITUS IN CASES OF SEPTIC PERITONITIS.

E. Kuster (Marburg) has treated six cases of septic peritonitis following abdominal operations by systematic abdominal decubitus. The patients were kept in this position as long as possible continuously or as much as possible. Of this series of cases four survived and recovered. One died with pneumonia, the other of an intestinal perforation. Observations on cadaver when the abdomen was filled with colored fluid showed that this position was very effective in emptying the abdomen in a short time. His clinical observations were that improvement of the serious conditions of the patients rapidly followed this treatment.

PERITONITIS DUE TO THE PNEUMOCOCCUS.

Recent bacteriological researches have proved that the pneumococcus may produce pathological changes in many parts of the body other than the lungs; thus cases of peritonitis, of suppurative or phlegmonous gastritis, and of appendicitis occur from time to time in which the pneumococcus can be demonstrated as the cause. Dr. M. von Brun discusses the general features of penumococcus peritonitis in Beiträge zur Klinischen Chirurgie, Band xxxix, Heft 1,[10] and summarizes his results as follows: The condition is relatively a rare one; it occurs more often in children than in adults, and more in girls than in boys. It may be primary in the peritoneum or may be secondary to affections of the lung or middle ear due to the pneumococcus. Considered from the clinical standpoint, the chief features of the affection are in typical cases an onset like that of an acute peritonitis, passing afterwards into a chronic stage with relatively few peritoneal symptoms. Pathologically, the appearances produced are suggestive, though, of course, the diagnosis can only be made after bacteriological examination. The process leads at an early stage to adhesions and to localization of the exudate which is very coagulable and rich in fibrin of greenish-yellow color and not offensive. The prognosis is favorable; spontaneous recovery, though possible, is rare. The treatment consists in freely opening the abscess cavity and draining, recovery being the rule. There are, perhaps, few organisms producing such widely different affections as the pneumococcus and it would be a matter of great interest and value if the mode of entry to some of the organs primarily affected could be more definitely determined, for in the primary peritoneal cases, Dr. von Brun admits that the explanation of their origin is far from satisfactory. It has been suggested that infection occurs in some cases through the appendix, but this would certainly not account for all. The pneumococcus seems to have a predilection for serous membranes as well as for the lung, since pleurisy, pericarditis, peritonitis and meningitis due to it are all described, and in all the cases the exudate presents similar characters to those described by Dr. von Brun in peritonitis.

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[4] Annals of Surgery, March, 1904, p. 356.
[5] Cent. f. Chir., 1904, Bd. xxxi, Beitrage, s. 55.
[6] The Lancet, May 14, 1904, p. 1334.
[7] Münchener med. Wochenschr., 1904, No. 14.
[8] v. Laugenbeck's Arch., Bd. lxxiv, Hft. 1.
[9] Zentbl. f. Chir., 1904, Bd. xxxi, s. 833.
[10] Lancet, Sept. 24, 1904, p. 908.

(*To be continued.*)

ANNAPOLIS NAVAL HOSPITAL TO BE CONSTRUCTED. — Bids were opened at the Navy Department on Dec. 14, for the construction of the new naval hospital to be built at Annapolis, Md. The lowest and successful bid was for $180,925. — *American Medicine.*

Reports of Societies.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS of the Seventeenth Annual Meeting, held at Birmingham, Ala., Dec. 13, 14 and 15, 1904.

The Association convened in the City Hall. The Second Vice-President, DR. J. SHELTON HORSLEY of Richmond, Va., presided, in the absence of the President, DR. F. W. MCRAE of Atlanta, Ga.

After addresses of welcome by MAYOR DRENNAN and DR. L. G. WOODSON, which were responded to by DR. W. P. NICOLSON of Altanta, Ga., the reading of papers was begun.

A METHOD OF UNITING INTESTINES OF VERY SMALL OR OF UNEQUAL CALIBER.

DR. J. SHELTON HORSLEY of Richmond, Va., said that there are many modifications of sutures, but all of them may be divided into two general classes, the continuous and the interrupted. Taking it for granted that such suture penetrates all coats of the intestines, he demonstrated experimentally that the continuous suture more nearly fulfills the ideal conditions for intestinal healing than the interrupted suture. Serous surfaces unite after being sutured, on account of the hyperemia of repair, and this is dependent upon some slight injury to the peritoneum. In the case of an interrupted suture, union is obtained within the bite of the suture, by hyperemia caused by pressure of the suture, by the trauma of the needle, and by the presence of the thread. Between the sutures the pressure from thin intestinal tissues is practically *nil*, so union depends solely upon extension of this hyperemia, and if this process does not extend from one stitch to another, leakage will surely occur. If continuous and moderate pressure is made on two serous surfaces, sufficient injury will be done those surfaces to cause adhesions. This continuous pressure along the entire margin of an intestinal wound can be obtained only by the continuous suture, and not by the interrupted.

He described nine experiments in which an area of intestine was included between two lines of sutures. In only four of these did the whole area between the rows of sutures unite, demonstrating that something besides mere approximation of serous surfaces is necessary for satisfactory union. The method of suture is difficult to describe without accompanying illustrations. The intestinal ends to be united are placed side by side with their convex borders in contact, and clamped with a hemostatic forceps. Then the author uses a suture that passes through the whole of the intestinal wall, sewing together with a continuous stitch a crescentic area excised; then changing the stitch to a Cushing right-angled continuous suture penetrating all the coats and invaginating the remaining margins of the wound. When the first knot is reached in the suture, it is invaginated, and the suture continued by two or more insertions of the needle; with the last two insertions of the needle, as secure a hold as possible is obtained without penetrating the mucosa. The very last insertion of the needle is in the reverse direction of the other insertions, so that when the knot is tied it is partly buried. The bowel is then returned to its natural position, and the mesentery sewed up with continuous stitches. A number of photographs and specimens from dogs were exhibited, demonstrating some of the advantages claimed for this method. These specimens have been filled with paraffin and then photographed; afterwards the intestine was removed, and the paraffin model was also photographed, giving a very good idea of the large lumen at the site of the union.

DR. W. P. CARR of Washington, D. C., stated that the holding of the bowel with a clamp, a rubber ligature, or tape, or something of that sort, to prevent the escape of intestinal contents during operation, is the only part of intestinal suture that seems not to be as perfect as it might be. There is more or less danger of injuring the bowel by a clamp or ligature which is put around it tight enough to prevent the intestinal contents from escaping. The Murphy button or any form of clamp might possibly do this at times, particularly if the bowel is already more or less inflamed at the time of operation. He thinks it is better to hold the bowel with the fingers of an assistant when this is possible, although it facilitates the operation very much to take the bowel in a long clamp not far from the point where it is going to be sutured, as it prevents the sliding of the coats of the bowel over each other.

DR. HERMAN J. BOLDT of New York City prefers suturing to using buttons or mechanical devices for intestinal anastomosis.

DR. J. M. T. FINNEY of Baltimore, Md., has found that there are certain technical difficulties to the end to end suture which are hard to overcome. For example, at the mesenteric border it is difficult to obtain satisfactory union; there is so much likelihood that a leak will occur there, that it has been his practice for the last two years to use almost exclusively lateral anastomosis, closing both ends. This gives more satisfactory union. He advocates the interrupted suture.

DR. A. PALMER DUDLEY of New York City uses the continuous suture and has obtained good results in his intestinal work.

DR. W. S. GOLDSMITH of Altanta, Ga., believes that in placing continuous sutures around the bowel, where there is likely to be distention, leakage may result, and a fistula be produced by tissue necrosis incident to bowel distention on account of the application of this ligature. He prefers the interrupted suture, although not so rapid for use, thus minimizing the pressure owing to distention or dilatation of the gut.

DR. SAMUEL J. MIXTER of Boston said that where one is in a hurry the continuous suture is quicker. He emphasized the necessity of everybody practicing these operations on lower animals before beginning to do them on patients. Every new method should be tried on some of the lower animals. He thinks very little clamping is necessary, even if there is some leakage. He does not consider that there is any great danger from septic peritonitis following, because the peritoneum is able to stand a great deal of soiling without much damage, and it can be washed off without producing any ill effects. This is likewise true of operations on the stomach.

INTESTINAL OBSTRUCTION.

DR. DYER F. TALLEY of Birmingham, Ala., pointed out two difficulties in the way of early operation for intestinal obstruction: (1) It is hard to make a positive diagnosis in the first twenty-four hours. Indeed, in some cases it is impossible to do so, unless an exploratory laparotomy is made. (2) There is a tendency on the part of the patient, his friends, and also the physician, to wait until to-morrow and see what purgatives and enemata will accomplish.

The author reported eight cases of intestinal obstruction that have come under his care during the last fifteen months. The details of each case were recounted with singular clearness. One case showed that a laparotomy can be done without anesthesia, and many cases that are seen late and are too weak for an

anesthetic may be operated on and relieved without a general anesthetic. The results of operation in the eight cases were five recoveries and three deaths.

DR. GUY LEROY HUNNER of Baltimore said that from a large experience with hospital and private patients showing symptoms of intestinal obstruction, he had come to the conclusion that he would rather err on the side of operating occasionally unnecessarily than to commit the error of not interfering and be too late. He cited cases in point.

DR. W. P. CARR stated that the more he sees of cases of intestinal obstruction, the more he is convinced that whenever there is a strong suspicion of it an exploratory operation should be made. There are so many cases that have little or no symptoms for quite a while, and others that have considerable fecal movements in the lower bowel after obstruction has taken place, that one is apt to be misled. He has been misled a number of times. He reported interesting cases.

DR. J. GARLAND SHERRILL of Louisville advocates early operation in these cases. Whenever a patient has intra-abdominal pain, which is not properly relieved, an exploration should be made. Whenever a patient has a severe pain in the abdomen that ceases suddenly, it is likely to be the result of gangrene of the gut, and for that reason such a case demands very prompt operation. Many of these patients can be saved by opening the abdomen at once, even in the presence of shock, and in this way inflammation of the peritoneum may be avoided.

DR. CHARLES L. BONIFIELD of Cincinnati recommends changing to ether when patients cannot stand chloroform, particularly in children.

DR. W. O. ROBERTS of Louisville narrated the case of a child, nine months old, on which he had operated. The patient had been treated for dysentery. When he saw the patient there was a considerable amount of distention of the abdomen, great straining on the part of the child, and bloody mucus passed by the bowel. He introduced his finger into the rectum and found an intussusception. The intussusception was within two inches of the anus. He advised laparotomy, which was consented to and performed, and found that the intussusception began at the ileo-cecal opening, and extended to within two inches of the anus. It was relieved; but the child died in the course of twelve hours from shock. He thinks it is very important in all cases of intestinal obstruction to examine the rectum carefully.

DR. WILLIAM E. PARKER of Hot Springs, Ark., said the general practitioner should be impressed with the importance of early diagnosis in these cases, and if there is any question to call in a general surgeon or someone who has had experience in this class of cases. He knows of no class of work in which an early diagnosis is so important. After the diagnosis is made, one should get into and out of the abdomen as quickly as is consistent with good work.

DR. W. P. NICOLSON of Atlanta said we should always bear in mind that the location of pain in the abdomen bears practically no relation to the site of the lesion itself in many cases. When a patient, with a severe abdominal pain, is not relieved by two or three doses of morphia, and does not remain relieved by this agent, but needs a repetition of it, the case is not one of indigestion. It is far more serious. He has had the misfortune to operate on a young woman for intestinal obstruction, and during the operation there was tremendous fecal vomiting, some of which was aspirated into the lung. She left the table in good condition, with strong pulse, and with indications that she would do well, but within a short time she became cyanosed, with rapid breathing, pulse increased in rapidity, remained conscious, but died within a few hours.

DR. SAMUEL J. MIXTER said that given a patient who has had intestinal obstruction for days, and is in a very critical condition, he thinks many of them can be saved, if too much is not attempted, and the reason so many of these patients die is because surgeons attempt too much. Take a case of gangrene following intussusception, if a simple opening is made in the distended loop of bowel, a tube tied in, and the intestine drained, a later operation can be done, and the patient probably saved, whereas, if one attempts to do a resection or a serious operation at the time, the patient will surely die.

DR. A. PALMER DUDLEY stated that the surgeon is at a great disadvantage when he is called in to see a patient to whom morphine has been administered for the relief of pain, for the reason that it masks the symptoms. Peristalsis is arrested, and the obstruction goes on more rapidly. He has not given a dose of morphine in fifteen years to any patient on whom he has performed an abdominal section.

DR. TALLEY, in closing, said the principal point he wanted to emphasize is the importance of early operation because he believes that most of the patients can be saved if reached and operated upon early enough.

A REVIEW OF ONE THOUSAND OPERATIONS FOR GALL-STONE DISEASE WITH ESPECIAL REFERENCE TO THE MORTALITY.

This is the title of a joint paper by DRS. WILLIAM J. and CHARLES H. MAYO of Rochester, Minn. The paper was read by Dr. Charles H. Mayo. In 1,000 operations for gallstone disease there were 50 deaths, 5%, counting as a death every patient operated upon who died in the hospital without regard to cause of death or length of time thereafter; 960 for benign disease, with 4.2% mortality. More than one procedure through a single incision, only the major was counted, therefore, 101 cholecystostomies, and 44 cholecystectomies in connection with common duct operations were not included. Of 673 cases operated upon by cholecystostomy, there was a mortality of 2.4%. This group included most of the acute infections. In no case did the stones reform in the gall-bladder. This is the operation of choice in the average uncomplicated case, and especially if there is, or has been, cholangitis.

Of cholecystectomy, there were 186 operations, with a mortality of 4.3%. This operation was employed for special indications, such as cystic duct obstruction, thick-walled gall-bladders suspicious of malignant disease, and cholecystitis without calculi. There were 137 operations for stone in the common duct, with a mortality of 11%, 7% from the operation, and 4% from secondary complications after more than three weeks. Of the cases operated upon during the quiescent period, with little jaundice and slight infection, all recovered. There were 4 cases with extreme icterus from obstruction, who had subcutaneous hemorrhages at the time of operation (purpura). All of these died; 4 cases of complete biliary obstruction, in which the common and hepatic ducts were filled with clear cystic fluid and no bile; all died. Including malignant disease, 14.6% of the total were of the common duct; 40 cases of malignant disease, with 22.5% mortality; 2 cases with cancer of the gall-bladder now alive and well, more than two years after operation; 2 additional favorable cases of more recent date. Of the remaining malignant cases, a few received marked palliation, but the majority were but little benefited.

ENTEROSTOMY.

DR. J. W. LONG of Greensboro, N. C., reported 8 cases of enterostomy occurring in twenty-two years of practice, with 5 recoveries, or 62½%.

CONCLUSIONS.

He drew the following conclusions:

(1) Enterostomy is a life-saving measure and never an operation of choice. (2) It is not indicated where a more ideal surgical procedure is feasible. (3) In the hands of an experienced, carefully trained, competent surgeon, capable of dealing with grave emergencies, enterostomy need rarely be resorted to, but the better the surgeon, the more quickly he will adopt any measure which will rescue his patient. (4) Every abdominal surgeon must, according to the abundance of his material, find cases in which only enterostomy can, with propriety, be done. (5) When an enterostomy is indicated, to hesitate is to lose the patient; to operate promptly, dextrously, and with celerity means to tide the patient over the imminent peril, and spare him for future consideration.

DR. JAMES A. GOGGANS of Alexander City, Ala., said that drainage of the distended intestines was very important. He made it a rule, if possible, when he did a laparotomy for any trouble whatever, to drain the intestine in order to let it regain its elasticity and move the fecal current along as it should go. He commends the author of the paper for advocating enterostomy, and draining where the intestine is greatly distended in the class of cases under discussion.

DR. J. GARLAND SHERRILL believes that enterostomy has a place in surgery in those cases in which complete surgery cannot be done; but whenever a surgeon sends a patient away from the operating table with an open intestine, he subjects the profession and himself to criticism from the laymen who do not understand the condition. Therefore, he would lay it down as a rule that no enterostomy should be done in any case where it is possible to do complete surgery, and instead of widening the field for enterostomy, surgeons should strive to contract it.

DR. I. S. STONE of Washington, D. C., said the essayist must have gotten hold of a number of very difficult and delayed cases for operation. He thinks the idea of the essayist is simply this, that rather than let a patient die from obstruction, he would catch up a loop of bowel and make an artificial anus. This is the old-fashioned way of doing enterostomy, and the essayist obtained as good a mortality as most surgeons would have gotten under the same circumstances.

DR. LONG, in closing, said it seems that he has unfortunately run afoul of quite a number of cases in which it seemed proper to do enterostomy. These eight cases were spread over a period of more than twenty-two years' practice. He doubts if any surgeon has a better percentage of recoveries in cases of acute intestinal obstruction by any method than that which he has reported, namely, 62½%.

THE ABUSE OF PURGATIVES BEFORE AND AFTER ABDOMINAL SECTION.

DR. I. S. STONE of Washington, D. C., said that purgatives should be given as evacuants, and should not produce hypercatharsis, whether administered before or after abdominal section. The excessive purgation, hypercatharsis, commonly employed, is intended not only to empty the bowels, but to perform additional service, namely, to remove collections of serum or other fluids which may be in the peritoneal cavity.

A large majority of the sections made at the present time may be called minor pelvic or abdominal. In these no infection exists, nor is the intestine in any way involved. Such cases require only the mildest evacuants, with sterile diet in the preliminary treatment. Vomiting, paresis, ileus, and excessive distention of the abdomen after operation are frequently exaggerated and aggravated by the administration of the worse than useless cathartics which are usually given. No remedy has been discovered for vomiting due to anesthesia, and this fact should interdict the annoyance given patients by using purgatives before normal peristalsis has been restored. The only remedy of value for vomiting is the regulation of stomach contents, both as to character and quality of substances ingested. It has been shown that patients have bowel movements after surgical operations because they are ready to act rather than because one has found any method to produce such results. Hypercatharsis does more than anything short of venesection, or the use of dangerous heart depressants, to unfit patients for prolonged anesthesia and operations. The prompt administration of purgatives after operation appears to cause vomiting and reversed peristalsis, and adds to the general discomfort of the patient. If the intestines are not actually scoured by catharsis and have only been fairly well emptied of excess of gas and fecal matter, they will respond to treatment after operation with far greater ease than when made absolutely empty.

A REVIEW OF THE TREATMENT IMMEDIATELY BEFORE AND AFTER ABDOMINAL SECTION.

DR. L. S. MCMURTRY of Louisville said that the general indications for preparatory treatment in cases of abdominal section were to cleanse the alimentary canal thoroughly without violent disturbance or exhaustion; to put all the eliminative functions in the best possible condition, and to favor in every way a tranquil state of mind and body. More than a year ago be became satisfied that to put the patient to bed for three days, or even longer, as was practiced by many, was not the best course of preparatory treatment. There is a positive advantage in having the bowels cleaned out in a relatively short time, as the patient is not relaxed by purgation, and is less prone to suffer from toxic changes. Prolonged and irritating catharsis increases the nausea and vomiting of ether and chloroform anesthesia. A prolonged period of preparatory treatment impairs the patient's strength and depresses the nervous system.

In the cleansing and disinfection of the skin, we must accept at the outset the established fact that sterilization of the skin from a bacteriological standard is impossible; yet mechanical cleansing will, for all practical purposes free the skin of all active germ action and provide for immediate primary union of wounds. In the effort to accomplish this, the important fact has been overlooked that the unbroken skin is endowed with a power of resistance to the activity of its own and other germs; and when the epidermis is cracked, denuded and broken by irritating germicides and scrubbing with hard brushes, this natural resistance is impaired and infection occurs. Mechanical cleansing will remove germs readily from smooth and unbroken cutaneous surfaces. For these reasons the brush and chemical germicides should be discarded and only soap and water and alcohol should be used, applying these with gauze instead of the brush.

In the after-treatment only the most simple course is necessary in average cases. The routine use of purgatives is to be avoided. The patient should be allowed to move about in bed freely, and should be given water as soon after operation as it can be retained.

(*To be continued.*)

Recent Literature.

Adolescence, Its Psychology and Its Relation to Physiology, Anthropology, Sociology, Sex, Crime, Religion and Education. By G. Stanley Hall, Ph.D., LL.D., President of Clark University and Professor of Psychology and Pedagogy. 2 Vols. 1393 pages. New York: D. Appleton & Co. 1904.

Dr. Clark is a pioneer in a new field, having gathered together the facts which underlie the influences that have advanced or retarded the development of man, and has embodied them in this work, which is founded on his "Psychology," now in preparation. He holds that the child and the race are each keys to the other. The years from about eight to twelve constitute a unique period of human life. The acute stage of teething is passing, the brain has acquired nearly its adult size and weight, health is almost at its best, activity is greater and more varied than ever before, or than it ever will be again, and there is peculiar endurance, vitality and resistance to fatigue. The child develops a life of its own outside the home circle, and its natural interests are never so independent of adult influence. Everything, in short, suggests the culmination of one stage of life. The boy is father of the man in a new sense, in that his qualities are indefinitely older and existed well compacted untold ages before the more distinctly human attributes were developed. Adolescence is a new birth, for the higher and more completely human traits are now born.

The book is a series of revised lectures delivered to his classes. Of the eighteen chapters, one is devoted to motor education and will training, two to the pedagogy of the English literature and language, of history, drawing, normal and high schools, colleges and universities and of philosophy, and one to the pedagogy of nature and the sciences most commonly taught. Menstruation and the education of girls occupies two chapters; hygiene, crime and secret vice and social and religious training one each. Adolescent love is taken up in parts of three chapters.

The book is full of suggestions and cannot fail to prove an inspiration to the reader, be he college president, teacher, physician or parent. The two volumes represent an enormous amount of research and deep reading of the literature, and the author is frank in statement and in no way hampered by preconceived views as to the training of youth. It is a pity that this, the first treatise in a new department of knowledge, could not have been written more for the general reader than for the student of pedagogy. Although we find in the preface the statement that the attempt has been made to bring the subject matter within the reach of any intelligent reader, the first chapter opens with these somewhat appalling sentences: "The beginning of individual life, or the age of zero for all sexed animals, is when the male cell penetrates the ovum. Their attraction for each other, which Maupas thinks a relic of the psychochemic tropism of agamic generation, is the biological basis, as the karyonomic rejuvenation thus caused is the goal of love in the ascending stages of life."

The author's vocabulary is wonderful; unfortunately for the average reader he has a special fondness for long words not in common use, and also has a bad habit of coining adjectives from nouns. Many of the terms used, such as virified, percentile, trancoidal, puberal, and haptics cannot be found in Stormonth's, Worcester's or the Century dictionaries. The work is prolix, the general plan of most of the chapters being to abstract articles by a wide range of authors without any summing up, so that at the end the reader is left helplessly wandering in a dreary waste of statistics which are often contradictory. Where the domain of medicine is trenched on, as it frequently is, Dr. Hall evinces a tendency to give undue weight to the statistics of workers unknown to the profession, and in sifting medical opinions he makes the mistake, which a layman must of necessity make, of getting the facts out of their proper proportion to one another.

Apart from these criticisms, which have to do more with the manner of presentation than with the subject matter, the book is a noteworthy one. The chapter alone on adolescent girls and their education makes the book well worth reading. We should like to see it rewritten in simple English and condensed to one volume.

A Textbook of Physiological Chemistry. By Olof Hammarsten, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized translation from the Author's enlarged and revised fifth German edition, by John A. Mandel, Sc.D., Professor of Chemistry and Physics, and of Physiological Chemistry in the New York University and Bellevue Hospital Medical College. Fourth American edition. 8vo. viii, 703 pages. New York: John Wiley & Sons. 1904.

We are pleased to have a new edition of this valuable work. The author has made a thorough revision of most of the chapters, necessitated by the rapid advances which have been made in this subject in the past five years. Certain older, superfluous, and at present untenable statements have been omitted, and some of the less important chemical methods have been treated less fully than in previous editions, particularly those which are not valuable to the physician and student. But even with these eliminations the work is somewhat enlarged, while the plan of the book remains the same as before. The subject matter is complete and fully up to date. We are confident that the teacher and student of physiological chemistry will be glad to receive this edition and that it will prove of material aid in the advancement of the subject.

Women in Medicine. — At the University of Michigan, as stated in the *Medical News*, there are at present forty-three women pursuing the study of medicine and surgery.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, JANUARY 5, 1905.

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REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

THE annual report of the Surgeon-General of the Public Health and Marine Hospital Service for the fiscal year 1904 shows that at the close of this fiscal year the commissioned corps consisted of one hundred and eighteen officers divided as follows: The Surgeon-General, six surgeons-general, twenty-five surgeons, thirty-six past assistant surgeons and fifty assistant surgeons. The service has continued to do excellent work in connection with the medical inspection of immigrants. During the year 840,714 were examined with reference to their physical fitness for admission to this country under the immigration laws. Officers on duty in Japanese and Chinese ports were also directed to make inspection of persons leaving those ports for the United States certifying their freedom from contagious disease. This admirable measure has been carried out without friction and clearly with benefit to the steamship companies as well as to the immigration service. It is evident that much less injustice is done through a method of examination which permits the determination of the condition before leaving the home country than by the former system of examination at the point of destination with possibility of return. It is suggested that a similar arrangement for immigrants leaving European ports for the United States is also desirable, but with the exception of Naples, where inspection is made at the request of the Italian government, nothing has as yet been accomplished.

Statistics of disease gathered by the department show that there has been a very marked decrease in smallpox during the year. The disease apparently reached its maximum in 1902, and judging from present appearances it is likely to still further decrease in the future. The total number of cases for the fiscal year of 1903 was 42,590, with 1,642 deaths, whereas the total for the last fiscal year was 25,106, with 1,118 deaths. It is interesting to observe that the proportionate number of deaths is very much higher during this last year than in the preceding. For this no explanation is given. The general decrease is thought to be due in part to fewer mistakes in diagnosis, and also to the fact that greater confidence in vaccination has been manifested than heretofore. A work of importance in which the Marine Hospital Service assists the state authorities is in the attempt to exclude and suppress smallpox at the Canadian border. Many families in this region are kept under observation, many individuals inspected and vaccinated, and those treated who may have contracted the disease.

The question of segregation of lepers in the United States is again considered. The commission appointed sometime since has recommended at least one leper hospital, and a bill to this end was prepared but not presented to Congress, owing to the agitation of the question of transportation of lepers now in the United States to the Hawaiian Islands. The whole subject demands further consideration. In the meantime it is still recommended that a leprosarium be established in the United States on government land. The authorities of the Hawaiian Islands have signified their desire to assist those interested in this country in making a scientific study into the disease and its treatment.

Plague exists in San Francisco and has done so since March 6, 1900, but it is steadily diminishing and no cases have been reported since February last. The disease was prevalent in Chinatown, and the improved sanitary conditions of this quarter of the city have undoubtedly led to its practical disappearance together with other diseases dependent upon filthy and unsanitary surroundings. Measures have been taken to protect the Isthmian Canal zone from this disease, but attention is called to the fact that its prevalence on the west coast of South America and neighboring countries is a constant menace to the United States. The enormous mortality of the disease in India, although largely limited to the native population, remains a source of anxiety to other nations.

Yellow fever during the year has been largely

limited to the region near the Mexican border. Active measures have been taken by skilled investigators toward the reduction of this disease through the extermination of its transmitters, the mosquito. What has already been done naturally lends much weight to the hope that the disease may ultimately entirely disappear from the western hemisphere.

This and much other excellent work the Public Health and Marine Hospital Service is now doing for the country. Its sphere of usefulness in fact extends beyond the country with which it happens to be identified into neighboring regions, and as Surgeon-General Wyman states in the conclusion of his introductory remarks, a perusal of the work of the service will show that it has clearly entered upon its functions as a national health organization. At first the great variety of duties connected with the service was a source of embarrassment. This, however, has become rather a source of strength in the wide experience it has given its officers in meeting the difficult problems of sanitation and public health. We quote *in extenso* two paragraphs of the report which adequately describe the work and the ideals of this branch of the public service:

"It should be considered that the service occupies a position involving a responsible trust, a position given it by Congress and recognized by the state boards of health. It is, therefore, expected to inaugurate and to conduct measures for the benefit of the public health to the extent and with the energy that have been demanded of the National Government in times past by the more thoughtful sanitarians and the medical profession of the United States. Moreover, as will be seen in this report, it has close international relations in health matters, and the stimulating effect of one nation's activity upon that of others is being rapidly demonstrated. It is believed that much may be accomplished through these relations.

"It should be borne in mind that the object of our own and other national organizations is not merely the exclusion and suppression of the great epidemic diseases. The contents of this report show that the terror inspired by these — a dread born of ignorance — has given way to a feeling of confidence justified by knowledge and successful contest. Greater attention is now directed to what have been termed the lesser epidemic diseases, which are in reality more fatal and bring far greater distress. In the advancement of civilization the elimination of these more familiar diseases will be an important factor, and the measures to accomplish it will not be quarantine, detention camps and sanitary guards, but insistence upon sanitary dwellings, in which shall be abundance of air and sunlight, pure water and safe disposal of all wastes. In the development of these measures new problems, both legal and material, will confront the service, and it is hoped both the Administration and Congress will give such aid as may be wisely given in the pursuance of its policies. Its organization is believed to be comprehensive and effective, but much remains to be done for the improvement of its several branches."

THE LONDON SCHOOL OF TROPICAL MEDICINE.

A RECENT number of the *British Medical Journal* calls attention to the fact that a new department in the study and teaching of tropical diseases is about to be inaugurated in the establishment of chairs for research in the subjects of protozoology and helminthology at the London School of Tropical Medicine. Hitherto, these provinces of knowledge have not been adequately represented in England as, for example, they have been in France and Germany, although, as is generally known, England has been prominent in the investigation of the problems connected with tropical disease for many years. It is understood that the funds for the establishment of these chairs come from colonial governments, which is significant in view of the fact that the work of the school naturally lies largely in England's foreign possessions. It is hoped that the salaries provided will be sufficient to encourage men of capacity to devote their entire time to the work, although the maximum allowed is five hundred pounds a year, and that only at the end of a number of years' service. It is provided that appointments be for six years, the pay beginning with two hundred and fifty pounds. Applications are desired from persons, preferably having medical qualifications, who are willing to serve as teachers as well as to occupy themselves in research. The incumbents of the positions are expected to devote their entire time to the service of the school. We have no doubt that these positions, although, as stated above, they can hardly be regarded as sinecures, will attract young men who are desirous not only of advancing knowledge, but also of adding to their reputation in the process. In the present overcrowded state of medical practice the positions undoubtedly will be eagerly sought, and we have no doubt that the excellent work already inaugurated and in many instances carried to completion by this school of tropical medicine will gain new impetus through the added positions which it is now able to offer.

MEDICAL NOTES.

PROFESSOR KOCH'S EXPEDITION. — It is reported that Professor Koch has started on a new scientific expedition, this time to Dar es Salam, in German West Africa, in order to complete researches which he has already begun on cattle plague. He intends also to make a study of other diseases of the tropics which affect both man and animals.

A CENTENARIAN. — Mr. Israel Burt, said to have been one hundred and four years old, died recently in Bridgeburg, N. Y. He is said to have passed one hundred years of his life without having ridden on a railway.

REPRESENTATIVES AT THE PAN-AMERICAN MEDICAL CONGRESS. — Surgeons H. R. Carter, J. C. Perry and C. C. Pierce have been detailed to represent the United States Public Health and Marine Hospital Service at the Pan-American Medical Congress.

PREVENTION OF INFANT MORTALITY. — *Science* is authority for the statement that the heirs of Professor Virchow have given about twelve thousand dollars to be applied toward the prevention of infant mortality in Berlin.

DELEGATES TO PAN-AMERICAN CONGRESS. — On Dec. 27 twenty-two physicians left Baltimore by the steamship "Athos" bound for Panama to attend the forthcoming meetings of the Pan-American Medical Congress. The trip includes in addition to attendance at this congress a visit to Havana where the delegates will be guests of the American Public Health Association holding its meeting there on Jan. 9.

NEW YORK STATE HOSPITAL FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN. — The fourth annual report of this institution shows that forty-two patients were treated during the year. But twenty-five beds are now at the disposal of this hospital, and Dr. Newton M. Shaffer, surgeon in chief and superintendent, has urged its enlargement. As a result of the efforts made, the legislature of 1903 appropriated fifty thousand dollars for a new hospital building. This will be located in West Haverstraw, Rockland County, where a site of great natural advantages has been found. For the present a building standing on the land will be used, allowing ten additional beds. Later it is hoped a still larger hospital may be erected.

SMALLPOX IN CHICAGO. — Chief Medical Inspector, Dr. Heman Spalding, in the *Bulletin* of the Chicago Health Department, reports sixteen new cases of smallpox sent to the Isolation Hospital during the week; fifteen never had been vaccinated; one had an old, imperfect scar; four were unvaccinated children under the school age. One was an unvaccinated school child in school on a false certificate of vaccination. Four came from the downtown lodging-houses.

Since Jan. 1, there have been 323 cases of the disease, of which number twenty-two died, 251 recovered and fifty remain in the hospital under treatment.

PLAGUE AT CAPE COLONY. — The medical officer of health of Cape Colony states, according to the *Lancet*, that for the week ending Nov. 19, the conditions as regards plague in the colony were as follows: At Port Elizabeth four cases were discovered during the week — namely, two European males and two native males. Plague-infected rodents were also found. At East London plague-infected rodents were found. In the Cape Town district, including the harbor and the shipping, 1,052 rodents were examined, but none was affected with plague. In other districts no case of plague in man or animal was discovered.

INTERNATIONAL MEDICAL CONGRESS. — Dr. J. H. Musser, president of the American Medical Association, at the request of the secretary of the International Medical Congress, which meets in Lisbon in 1906, and on approval of the House of Delegates, has appointed the following members of the American Committee of Arrangements:

Drs. Frank Billings, Chicago; Herman M. Biggs, New York; Herbert L. Burrell, Massachusetts; William T. Councilman, Boston; Wm. H. Carmalt, Connecticut; Richard C. Cabot, Massachusetts; N. S. Davis, Jr., Illinois; Chas. H. Frazier, Philadelphia; R. H. Fitz, Massachusetts; W. E. Fischel, Missouri; Chas. Lyman Greene, Minnesota; Ramon Guiteras, New York; H. A. Hare, Pennsylvania; L. Hektoen, Chicago; Edward Jackson, Denver; E. J. Janeway, New York; A. Jacobi, New York; George B. Johnston, Richmond, Va.; W. W. Keen, Philadelphia; Howard A. Kelly, Baltimore; Chas. Kollock, South Carolina; L. S. McMurtry, Louisville, Ky.; James H. McBride, California; A. T. McCormack, Bowling Green, Ky.; K. A. Mackenzie, Portland, Ore.; John Herr Musser, Philadelphia; J. B. Murphy, Chicago; R. Matas, New Orleans; William Osler, Baltimore; Chas. Powers, Colorado; J. B. Roberts, Pennsylvania; W. L. Rodman, Pennsylvania; M. H. Richardson, Boston; Chas. A. L. Reed, Ohio; H. M. Sherman, San Francisco; Frederick C. Shattuck, Boston; Geo. H. Simmons, Chicago; Chas. G. Stockton, New York; Geo. Sternberg, Washington, D. C.; Victor Vaughan, Ann Arbor; John A. Witherspoon, Tennessee; J. Collins Warren, Massachusetts; J. C. Webster, Chicago; Wm. H. Welch, Baltimore; John A. Wyeth, New York; the Surgeon-Generals of the Army, Navy and United States Public Health and Marine Hospital Service; the presidents of the American Ophthal-

mological, Otological, Gynecological, Physiological and Pediatric societies; the presidents of the American Dermatological, Laryngological, Surgical, Climatological, Neurological, Medico-Psychological and Orthopedic associations; the presidents of the Association of American Anatomists, Association of American Physicians, American Association of Genito-Urinary Surgeons, American Association of Pathologists and Bacteriologists, New York Academy of Medicine, College of Physicians, Philadelphia, Cook County Medical Society, Chicago, and the Society of Medical Improvement, Boston.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Jan. 4, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 24, scarlatina 29, typhoid fever 6, measles 8, smallpox 0.

The death-rate for the week ending Jan. 4, 1905, was 17.32 of total deaths reported.

Smallpox. — Two cases of smallpox have been reported from Everett, Mass. They are probably traceable to the steamship "Cymric," recently from Liverpool.

Bequests to Hospitals. — By the will of the late John J. Pickering, $45,000 is given to the Portsmouth, Mass., Cottage Hospital, for the erection of a new building, to be known as the Pickering Annex. In addition, $5,000 is given without restriction to the hospital. The Portsmouth Home for Indigent Women also received $10,000.

Trial of Hyde Park, Mass., Vaccination Cases. — Trial of the Hyde Park "Vaccination cases" was begun Jan. 3. Suit has been brought by the parents of two children, who were excluded from schools because of their refusal to be vaccinated. The cases are likely to prove of much importance in testing the efficiency of the regulation regarding vaccination.

Care of Lepers in Massachusetts. — The question of the best disposition of three lepers now in Massachusetts is agitating the public mind. The State Board of Charity has been considering the matter, and the suggestion has been made that a leper colony be created near the state almshouse at Tewksbury or on a tract of land on Cape Cod. These propositions we understand have met with local opposition. It has also been suggested that the city care for the lepers on Gallup's Island as has heretofore been done, expenses to be defrayed by the state. This arrangement would seem to meet the demands of the case sufficiently, inasmuch as we have not now and it is exceedingly unlikely that we ever shall have in the future more than a few sporadic cases of the disease.

The Scope of the Instructive District Nursing Association of Boston. — Perhaps it is not generally understood that the Instructive District Nursing Association of Boston, besides supplying nurses for the patients of the district physicians of the Boston Dispensary, also is ready to supply nurses for other physicians, to attend patients who are poor and can pay nothing or those in moderate circumstances who can pay something toward the support of a nurse but who cannot pay the whole price.

This applies even when the physician is paid a part of his fee.

Physicians wanting a nurse can apply at Room 67, 2 Park Square, or by telephone, Oxford 627-8.

Night calls should be made by telephone to Back Bay, 1977-6.

NEW YORK.

Sailed for Panama. — On Dec. 26 a number of well-known New York physicians, including Drs. Ramon Guiteras, William H. Bryant, A. E. Macdonald and R. C. Tillinghast, sailed for Panama to attend the Pan-American Medical Congress.

A Children's Ward at Lincoln Hospital and Home. — On Dec. 26 a children's ward was opened for the first time at the Lincoln Hospital and Home (colored), on the southern boulevard in the Bronx. This was through the generosity of Mr. and Mrs. Reginald Vanderbilt, the gift being in the name of their little one-year-old daughter. A room 50 by 50 feet, formerly used for the meetings of the board of trustees, has been remodelled at an expense of about $7,000 and twenty beds placed in it.

Pollution of Lake Champlain. — Complaints of the alleged pollution of the waters of Lake Champlain and of the Boquet and Au Sable rivers by the refuse products of certain wood-pulp mills are stated to be confirmed by the findings of the experts of the New York State Health Department in an investigation recently completed. It was carried on by Prof. O. H. Landreth, consulting engineer of the department, with the aid of Prof. W. G. Tucker, department chemist, and Dr. G. C. Whipple, formerly biologist of the Boston Water Works and more recently director of the Mount Pleasant laboratory of the New York City Water Department. In the report giving the results of his investigation,

Professor Landreth makes several recommendations which will be presented to the governor by Dr. Daniel Lewis, state health commissioner. One of them is as follows: "That in view of the importance of the purity of the waters of Lake Champlain and Lake George, the laws, regulations and authority of this department relating to the discharge of sewage into public waters be strictly enforced with regard to these lakes and all tributary streams."

REDUCED SCHOOL HOURS. — Under the direction of the Board of Education the city superintendent of schools has been making an exhaustive investigation to learn if the present five hours of classroom work may not be cut down without serious hindrance to the advancement of the children. A reduction in the educational budget for 1905 of nearly $2,000,000 has made some curtailment of the present school system imperative, and it is believed by many competent judges that this could be most satisfactorily effected by lessening the amount of study among the very young. Mr. Tifft, the newly chosen president of the Board of Education, has expressed himself in favor of short hours for the younger children of the public schools. While a five-hour day is probaoly good to keep the children off the streets in some parts of the city, he thinks that part-time hours are long enough for the little ones. He would give every child educational opportunities as great as possible, but not such as to interfere with proper mental and physical growth. In the New York Juvenile Asylum, of which he is a director, he states that the children are given only three hours of classwork daily, it having been found that more than that makes them restless. Should the present school schedule be shortened, it would require three hours and a half from the pupils of the lowest classes, instead of five. This would, in fact, establish for all pupils of these grades much the same hours as are now required from the part-time classes in the overcrowded districts. Because of lack of school room in certain parts of the city, there are nearly eighty thousand children (or about one in six) who receive but three and three quarters hours of schooling a day.

Miscellany.

THE MEDICAL SERVICE OF THE BRITISH ARMY.

SPEAKING of the medical service of the British army, the special correspondent of the *Medical News*, writes as follows:

"The medical service of the army is at this moment without an official head. The term of office of the late Director-General, Sir William Taylor, expired on Dec. 1, and there has been a veritable tug-of-war between the military authorities and the Advisory Board which is partly composed of civilian doctors, as to the choice of a successor. The former wish to have a representative of the old order of things; the latter insist on having a man of progressive ideas. The Secretary of State for War, Mr. Arnold-Forster, must have a bad time between the contending parties. He came into office a few months ago with a preconceived policy, the essential feature of which was to undo the work of reform that had been done by his predecessor, Mr. Brodrick. The question whether Mr. Brodrick was or was not a heaven-born war minister, as his friends declared him to be, need not be discussed here. But there is no doubt whatever that as far as the improvement of the medical service of the army is concerned, his work was, as far as it went, almost wholly good. Mr. Arnold-Forster's attitude toward the doctors was at first distinctly hostile. The experience gained during his short period of office seems, however, to have taught him that in regard to the medical department, at any rate, it would be a fatal mistake to go back to the old order of things. But the Adjutant-General who, in accordance with the latest scheme of reform, controls the medical service, and who is a stanch upholder of what in Germany is called Junkerism in military administration, has threatened to resign unless he has his way in the appointment of a Director-General of the traditional type. To speak plainly he wants an officer grown gray in the service, who may be trusted not to trouble the repose of the war office by a consuming zeal for the efficiency of his department. The Advisory Board on the other hand are eager to break a tradition which they hold to be largely accountable for the discredit into which the service had fallen at the time of the South African War. They have used all the influence they could bring to bear on the Government to have Deputy Director-General Keogh appointed head of the medical service. Such an appointment would be almost revolutionary, for Keogh is a comparatively young man who was promoted to his present post over the heads of a large number of senior officers. His only disqualification, however, even in the eyes of the military faction, is his youth. It is probable that he will be appointed, as it is understood that Sir Frederick Treves has used all his great influence with the King in his favor, and the Sovereign has — on personal, not on constitutional grounds — a good deal to say in army appointments, if he cares to intervene.

"Some years ago it was difficult for a medical officer of the Army to secure election at one or two of the 'Service' clubs. At that time a majority of the army doctors were men of rather indifferent breeding from the Scottish and Irish schools, and it must be admitted that many of them were, from the social point of view, 'undesirables.' Members of the clubs accordingly conspired together to exclude medical officers, and as a very small proportion of blackballs is sufficient to 'pill' a candidate, they generally succeeded. The improved conditions of the service have for a few years past attracted a better class of men in the professional as well as the social sense, and the ill-feeling against the medical branch that used to exist among combatant officers has to a large extent died out. That it still persists in certain quarters, however, is shown by the fact that the other day no fewer than seventeen doctors were rejected in a body at the Junion United Service Club. The incident has excited a good deal of indignation among the members of the club, and it has been ascertained that a clique of retired 'fossils' are at the bottom of

the affair. The committee of the club has called a general meeting for a day next week when the names of the rejected officers will be submitted for election without the secrecy of the ballot. If the clique persists in its opposition to doctors, the medical members, who number about one hundred and fifty, will organise themselves into a clique which will systematically blackball every candidate proposed for election, to whatever branch of the Army or Navy he may belong."

THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

THE first annual meeting of "The National Association" will be held in Washington, D. C., at the New Willard Hotel on Thursday and Friday, May 18 and 19, 1905. There will be general sessions and division of the work into the following three sections:

1. SOCIOLOGICAL.

Chairman, Mr. Homer Folks, State Charities Aid Association, United Charities Building, 105 E. Twenty-second Street, New York; *secretary*, Miss Lilian Brandt, United Charities Building, 105 E. Twenty-second Street, New York.

Executive Committee: Dr. H. M. Bracken, St. Paul; Dr. J. W. Brannan, New York; Mr. E. P. Bicknell, Chicago; Mr. Ed. T. Devine, New York; Mr. Chris. Easton, Newport; Prof. Irving Fisher, New Haven; Dr. John S. Fulton, Baltimore; Mr. F. L. Hoffman, Newark; Dr. J. N. Hurty, Indianapolis; Dr. S. A. Knopf, New York; Dr. Ernest Wende, Buffalo; Mr. A. M. Wilson, Boston.

2. PATHOLOGICAL AND BACTERIOLOGICAL.

Chairman, Dr. Mazyck P. Ravenel, Phipps Institute, Philadelphia, Pa.; *secretary*, Dr. D. J. McCarthy, Phipps Institute, Philadelphia, Pa.

Executive Committee: Dr. Ed. R. Baldwin, Saranac Lake; Dr. William T. Councilman, Boston; Dr. William T. Howard, Jr., Cleveland; Dr. Hugh M. Kinghorn, Saranac Lake; Dr. William G. MacCallum, Baltimore; Dr. Roswell Park, Buffalo; Dr. William H. Welch, Baltimore.

3. CLINICAL AND CLIMATOLOGICAL.

Chairman, Dr. Norman Bridge, 217 S. Broadway, Los Angeles, Cal.; *secretary*, Dr. S. G. Bonney, Stedman Building, Denver, Colo.

Executive Committee: Dr. Robert H. Babcock, Chicago; Dr. Frank Billings, Chicago; Dr. Vincent Y. Bowditch, Boston; Dr. Lawrason Brown, Saranac Lake; Dr. J. P. C. Foster, New Haven; Dr. Charles L. Greene, St. Paul; Dr. Ed. G. Janeway, New York; Dr. H. M. King, Liberty, N. Y.; Dr. Arnold C. Klebs, Chicago; Dr. H. R. M. Landis, Philadelphia; Dr. Charles L. Minor, Ashville; Dr. J. H. Musser, Philadelphia; Dr. Ed. O. Otis, Boston; Dr. William B. Stanton, Philadelphia; Dr. A. Stengel, Philadelphia; Dr. Joseph Walsh, Philadelphia; Dr. James C. Wilson, Philadelphia.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 24, 1904.

CITIES.	Population, Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York	3,986,844	1,425	626	14.67	24.19	3.29	1.19	1.19
Chicago	2,021,626	544	149	22.06	20.97	2.39	1.47	—
Philadelphia	1,467,626	503	139	18.69	21.66	2.78	1.57	—
St. Louis	625,000	—	—	—	—	—	—	—
Baltimore	542,520	206	44	23.77	18.81	1.46	4.45	.50
Cleveland	444,021	—	—	—	—	—	—	—
Buffalo	409,000	—	—	—	—	—	—	—
Pittsburg	350,000	—	—	—	—	—	—	—
Cincinnati	326,577	—	—	—	—	—	—	—
Milwaukee	320,000	—	—	—	—	—	—	—
Washington	320,770	—	—	—	—	—	—	—
Providence	198,744	78	16	23.07	15.38	2.56	1.28	—
Boston	617,000	190	97	16.16	14.24	1.51	—	.50
Worcester	136,925	57	18	16.81	27.49	5.49	—	5.49
Fall River	119,540	45	18	24.22	22.22	2.22	2.22	—
Lowell	104,402	41	11	14.63	14.63	9.44	—	—
Cambridge	103,620	31	5	14.29	9.52	—	4.76	—
Lynn	75,575	30	4	27.27	22.72	11.11	—	5.05
Lawrence	79,849	19	3	26.04	21.05	—	—	—
Springfield	73,000	—	—	—	—	—	—	—
Somerville	70,413	29	4	18.18	13.63	—	—	—
New Bedford	69,962	33	6	15.15	18.18	—	—	—
Holyoke	56,000	9	4	—	—	—	—	—
Brockton	40,661	9	2	22.22	—	—	—	—
Newton	39,310	11	2	18.18	—	—	—	—
Haverhill	39,031	11	3	27.27	9.09	—	—	—
Malden	37,205	10	1	10.00	20.00	—	—	—
Salem	37,182	13	2	8.33	8.33	—	8.33	—
Chelsea	34,000	9	2	10.00	20.00	—	10.00	—
Fitchburg	32,325	—	—	—	—	—	—	—
Taunton	34,577	8	—	12.50	12.50	—	—	—
Everett	33,260	6	—	16.67	16.67	16.67	—	—
North Adams	20,201	8	2	12.50	25.00	12.50	—	—
Quincy	32,700	8	3	12.50	—	—	—	—
Gloucester	27,197	6	—	—	—	—	—	—
Waltham	25,797	4	1	25.00	25.00	—	—	—
Brookline	25,576	3	—	—	33.33	—	—	—
Pittsfield	25,270	—	—	—	—	—	—	—
Medford	21,000	6	1	—	33.33	—	—	—
Chicopee	21,000	3	1	—	33.33	—	—	—
Northampton	20,514	4	0	—	—	—	—	—
Beverly	15,807	6	1	16.67	33.33	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,634	4	1	—	—	—	—	—
Adams	14,745	3	1	—	33.33	—	—	—
Amesbury	14,561	—	—	—	—	—	—	—
Hyde Park	14,000	3	1	—	—	—	—	—
Newburyport	14,478	6	0	16.67	33.33	—	—	—
Woburn	14,315	1	1	—	—	—	—	—
Melrose	13,819	5	0	—	—	—	—	—
Westfield	13,500	3	1	33.33	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,629	3	0	—	—	—	—	—
Revere	13,609	3	—	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,625	—	—	—	—	—	—	—
Gardner	13,294	3	1	33.33	33.33	—	—	—
Southbridge	11,716	8	3	62.50	37.50	25.00	—	12.50
Watertown	11,575	4	1	25.00	25.00	—	—	—
Weymouth	11,500	1	0	25.00	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,875; under five years of age, 870; principal infectious diseases (smallpox, measles, scarlet fever, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 678; acute lung diseases 717, consumption 361, scarlet fever 39, whooping cough 10, cerebrospinal meningitis 23, smallpox 1, erysipelas 13, puerperal fever 17, measles 8, typhoid fever 45, diarrheal diseases 81, diphtheria and croup 93.

From whooping cough, New York 1, Chicago 7, Boston 1, Worcester 1. From scarlet fever, New York 15, Chicago 2, Baltimore 2, Providence 2, Boston 2, Fall River 1. From cerebrospinal meningitis, New York 17, Baltimore 1, Boston 1, Worcester 3, Lynn 1, Southbridge 1. From erysipelas, New York 7, Philadelphia 2, Boston 1, Lowell 1, Somerville 1.

In the seventy-six great towns of England and Wales, with an estimated population of 18,371,327, for the week ending Dec. 10, the death-rate was 18.8. Deaths reported 5,458; acute diseases of the respiratory organs (London) 295, whooping cough 71, diphtheria 80, measles 138, small pox 1, scarlet fever 60.

The death-rate ranged from 6.9 in Bournemouth to 26.3 in Walsall; London 16.1, West Ham 18.6, Brighton 20.6, Southampton 14.8, Plymouth 23.5, Bristol 23.1, Birmingham 19.7, Leicester 17.0, Nottingham 20.3, Birkenhead 15.0, Liverpool 21.6, Wigan 23.2, Bolton 17.5, Manchester 22.2, Salford 23.0, Halifax 18.9, Bradford 18.7, Leeds 14.9, Hull 19.2, Sheffield 15.7, Newcastle-on-Tyne 24.5, Cardiff 16.3, Rhondda 17.9, Hornsey 10.9, South Shields 18.9.

METEOROLOGICAL RECORD.

For the week ending December 24, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*			Rainfall in inches.
	Daily means.	Daily means.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily means.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.		
S.. 18	29.80	28	33	22	100	71	86	N	N W	19	10	N.	C.		.36
M.. 19	29.89	30	41	19	71	70	70	S	S W	4	14	O.	O.		0
T.. 20	29.81	30	35	26	55	74	64	W	S W	10	12	C.	N.		T.
W.. 21	30.02	23	31	15	81	54	68	N W	N W	8	10	O.	C.		T.
T.. 22	30.26	24	34	13	67	64	66	S W	S W	15	10	F.	O.		0
F.. 23	29.90	42	49	34	74	60	67	S W	S W	8	9	R.	O.		T.
S.. 24	30.17	30	48	12	78	74	76	N E	N	15	12	O.	O.		0
Mr	29.98		39	20			71								.36

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Mr Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY THE WEEK ENDING DECEMBER 31, 1904.

A. G. GRUNWELL, surgeon. Detached from the "Dixie" and ordered to the Naval Hospital, New York, N. Y., for treatment.

R. E. LEDBETTER, passed assistant surgeon. Detached from the "Lancaster" and ordered to the "Dixie."

J. T. KENNEDY, passed assistant surgeon. Ordered to the Naval Station, Guantanamo, Cuba, and to additional duty on the U. S. S. "Amphitrite."

J. E. PAGE, passed assistant surgeon. Ordered to the "Lancaster."

V. C. B. MEANS, surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

W. L. BELL, passed assistant surgeon. When discharged from treatment at the Naval Hospital, New York, ordered home and granted sick leave for three months.

W. H. JANNEY, acting assistant surgeon. Detached from the "Marcellus" and ordered to the "Cæsar."

W. B. GROVE, surgeon. Detached from the "Atlanta" and ordered home to wait orders.

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY MEETINGS. — The Boston Medical Library Meetings in conjunction with the Suffolk District Branch of the Massachusetts Medical Society. There will be a meeting at the Library, 8, The Fenway, Wednesday, Jan. 11, 1905, at 8.15 P.M. Subject: Medical Charity: Dr. George W. Gay. Discussion, Dr. Hasket Derby, Dr. G. H. M. Rowe, Dr. F. A. Washburne, Dr. A. Worcester of Waltham, Dr. Charles Cook of Natick, Dr. G. W. Elliot, Dr. Farrar Cobb. The profession is cordially invited to be present. Light refreshments at the close of the meeting.

DR. GEO. W. GAY,
DR. FRED. B. LUND,
DR. ELLIOTT P. JOSLIN,
Committee.

RECENT DEATH.

DR. GEORGE L. FREEMAN of Glen Head, Long Island, N. Y., died on December 27, in the seventy-sixth year of his age.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Jan. 6, from 10 A.M. until 12.30 P.M.: Amputation of Breast; Ligation of Femoral Artery, for Aneurism; External Urethrotomy; Decapsulation of Kidneys; Radical Cure of Inguinal Hernia.

ERRATUM.

The next meeting of the Congress of American Physicians and Surgeons will be held in 1907 and not in 1906, as stated in the last issue of the JOURNAL.

BOOKS AND PAMPHLETS RECEIVED.

Post-Operative Malaria, with a Report of Two Cases. By John T. Moore, M.D. Reprint.

The Occurrence of Taenia Nana in Texas (the first, or, at least, the second Reported Case in North America). By John T. Moore, M.D. Reprint.

The Essentials of Chemical Physiology. For the Use of Students. By W. D. Halliburton, M.D., F.R.S. Fifth Edition. Illustrated. London, New York and Bombay: Longmans, Green & Co. 1904.

Kirkes' Hand-Book of Physiology. By W. D. Halliburton, M.D., F.R.S. Nineteenth Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Saunders' Question-Compends, No. 3. Essentials of Anatomy, including the Anatomy of the Viscera arranged in the form of Questions and Answers prepared especially for Students of Medicine. By Charles B. Nancrede, M.D. Seventh Edition, thoroughly revised. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Saunders' Question-Compends, No. 7. Essentials of Materia Medica, Therapeutics and Prescription Writing arranged in the form of Questions and Answers prepared especially for Students of Medicine. By Henry Morris, M.D. Sixth Edition, thoroughly revised by W. A. Bastedo, Ph.G., M.D. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

The Louisiana Purchase Exposition, the Neurasthenic and the Brain-Tired. By Charles H. Hughes, M.D. Reprint.

Blood-Pressure as Affecting Heart, Brain, Kidneys, and General Circulation. A Practical Consideration of Theory and Treatment. By Louis Faugeres Bishop, A.M., M.D. New York: E. B. Treat & Co. 1904.

The Practical Medicine Series of Year Books, comprising ten volumes on the year's progress in Medicine and Surgery. Issued Monthly. Under the general editorial charge of Gustavus P. Head, M.D. Vol. viii, July, 1904; Vol. ix, August, 1904; Vol. x, September, 1904. Chicago: The Year Book Publishers.

Practical Dietetics with Reference to Diet in Disease. By Alida Frances Pattee. Second Edition. Revised and Enlarged. 1904.

Notes on X-Light. By William Rollins. 1904.

A Philosophy of Therapeutics. By Eldridge C. Price, M.D. Baltimore: Nunn & Company. 1904.

New Methods of Treatment. By Dr. Laumonier. Translated and edited from the Second Revised and Enlarged French Edition by H. W. Syers, M.A., M.D. Cantab. Chicago: W. T. Keener & Co. 1904.

Sulphurous Acid and Sulphites as Food Preservatives. By C. E. Calm, Ph.D. Reprint.

Transactions of the Maine Medical Association. 1904. Vol. xv. Part 1.

The Cardio-Vascular Apparatus during and after Infectious Diseases. By Alfred Stengel, M.D. Reprint.

Clinical Diagnostic Bacteriology, including Serum Diagnosis and Cytodiagnosis. By Alfred C. Coles, M.D., D.Sc., F.R.S. Edin. Illustrated. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1904.

Twelfth and Thirteenth Annual Reports of the Ohio Hospital for Epileptics for the years 1902 and 1903.

Varieties of Splenic Anæmia. By Alfred Stengel, M.D. Reprint.

Specific Precipitins and their Medico-Legal Value in Distinguishing Human and Animal Blood. By Alfred Stengel, M.D. Reprint.

Iodic Purpura with Fever. By Alfred Stengel, M.D. Reprint.

The Clinical Course and Diagnosis of Arterio-Sclerosis. By Alfred Stengel, M.D. Reprint.

Diabetes as a Complication of Pregnancy. By Alfred Stengel, M.D. Reprint.

The Early Diagnosis of Arteriosclerosis. By Alfred Stengel, M.D. Reprint.

The Heart and Circulation in Pregnancy and the Puerperium. By Alfred Stengel, M.D., and W. B. Stanton, M.D. Reprint.

A Discussion of the Surgery of Tumors of the Brain, with a Resume of the Operative Records of Four Craniotomies. By Charles H. Frazier, M.D. Reprint.

A Further Report upon the Treatment of Tic Douloureux by Division of the Sensory Root of the Gasserian Ganglion. By Charles H. Frazier, M.D., and William G. Spiller, M.D. Reprint.

Case of Strangulated Meckel's Diverticulum Complicating Typhoid Fever. By Joseph Sailer, M.D., and Charles H. Frazier, M.D. Reprint.

The Surgical Treatment of Facial Palsy. Preliminary Report of One Case. By Charles H. Frazier, M.D. With Remarks upon the Treatment from the Standpoint of the Neurologist. By William G. Spiller, M.D. Reprint.

Original Articles.

THE SYSTEMATIC USE OF WORK AS A REMEDY IN NEURASTHENIA AND ALLIED CONDITIONS.*

BY HERBERT J. HALL, M.D., MARBLEHEAD, MASS.

THE following paper, while really the preliminary report of a new institution, is intended to offer a practical protest against the almost universal application of rest in the treatment of neurasthenia and allied conditions.

There seems to be a considerable difference of opinion concerning neurasthenia, whether it should be regarded as a clearly defined disease or merely a mental and nervous state, varying with the individual and with the provoking cause from slight nervousness or irritability to the most profound prostration.

The writer likes to believe that any individual is properly neurasthenic who, barring the actual effects of physical disease, is the subject of fatigue or irritability beyond the reasonable results of mental or physical exertion, and who is thereby partially or wholly incapacitated for his ordinary occupation or from the enjoyment of life.

A study of the etiology of this rather indefinite disease, if, indeed, it may be called a disease, has led the writer to some conclusions as to treatment a little at variance with the usually accepted idea.

It is an evident and probably significant fact that neurasthenics, apparently without exception, lead very faulty lives, lives which, even in the absence of actual disease would still be difficult and trying to the individual. By faulty living is not meant faults of hygiene, although these often enough exist, but mental faults, chief and representative among which is worry. In very many if not in all cases it will be found that unusual worry or a tendency to overestimate the importance of small things, or some equivalent mental perversion, existed long before the well-known symptoms of neurasthenia appeared — a fact which is, to say the least, suggestive of etiological possibilities.

Worry is not a very exact term, but it is expressive and convenient and will be understood to refer to a variety of mental states such as those attendant upon loss and uncertainty, as well as upon numberless real or imagined troubles of every degree and kind. Worry is a very real thing, and in the sanest mind it will, if long continued, breed a dangerous unrest and unhappiness.

This factor, worry, seems, moreover, to be closely associated with a sense of fatigue and exhaustion which may appear sooner or later, and is often not distinguishable from the muscular or mental fatigue which follows long and arduous labors. Whether this fatigue, which every one has experienced in some degree, is identical with physical fatigue or whether it is of a different nature altogether and purely psychic, is a question of some importance. There is, at least, this difference between the fatigue sense which follows worry and that which follows overwork. The first often becomes very persistent and is usually not relieved by physiological rest, while the second is transitory and is fully compensated for by reasonable rest or relaxation.

The feeling is gaining ground that neurasthenia with its complex symptomatology is not necessarily due to the piling up in the system of the poisonous waste products of overfunctioning, but that it may be largely or wholly psychic.

Dana,[1] in a recent article, admits that he has been looking in vain for many years to find a case of neurasthenia due to overwork. It is certainly true that some of the most pronounced neurasthenics have never overworked or overfunctioned in any discoverable way. Idleness probably precedes neurasthenia quite as often as does work, and it will be difficult or impossible to find a case apparently produced by overwork without a clear accompaniment of worry.

It is not for a moment claimed that overwork is not often a potent factor in the bringing on of neurasthenia, but the suggestion is definitely made that worry will probably always be found as a necessary factor. A man, it would seem, may become neurasthenic after some great physical or mental shock or during the nervous strain that exists through some long continued domestic infelicity. On the other hand, he may work excessively for months, but if his mind is clear, his purpose sound and his home happy, he will probably not become neurasthenic. He may be very weary but reasonable rest will restore him.

The characteristic fatigue symptom which may often have led us to believe that neurasthenia is due to overwork may, perhaps, be more or less accurately accounted for as a matter of association of ideas.

Care and uncertainty may induce a feeling of fatigue because the purely psychic sense of weight and oppression which accompanies them, in some way suggests or recalls the well-known feeling of weight and oppression which accompanies over-physical exertion. So far as the other symptoms of neurasthenia go, some of them may be difficult to explain on a psychic basis, but many at least are manifestly mental in their beginning and in their end.

A curious fact, and one which is of great importance in the matter of treatment, is this: that when neurasthenia in almost any degree is established, a feeling of fatigue is often brought on by the mere thought of exertion or by the anticipation of any task. It is also an interesting and suggestive truth that the things the patient likes to do are, as a rule, less apt to produce fatigue than those activities which are distasteful.

The foregoing observations would seem to apply less directly but still with force to those cases of neurasthenia evidently secondary to

* Read Nov. 29, 1904, at a meeting of the Essex South section of the Massachusetts Medical Society held in Lynn, Mass.

[1] "The Partial Passing of Neurasthenia," by Chas. L. Dana. BOSTON MEDICAL AND SURGICAL JOURNAL, vol. cl., No. 13, p. 339.

eye-strain, to physical disease, or some other peripheral irritation. It is probable that eye-strain, for instance, would not of itself produce the varied conditions of neurasthenia were it not for an intermediate stage in which actual fatigue and mental irritation commingle.

Whether these views are correct or not, they have suggested a system of treatment which has already been most encouraging in its results.

Since we started with the assumption that faulty living, in one form or another, might be an important etiological factor in neurasthenia, we may further assume that after all possible physical faults have been corrected, right living, normal and just, and, so far as possible, suited to the individual, should prove to be the best of remedial agents. It would seem that some radical change is called for in the every-day life of the patient. For while the conditions of the old life obtain, medical advice and even the best of suggestions are too often swept away by the flood of habit, and the old worries and irritations are very apt to return with overwhelming force.

There is nothing new in the idea that physical work is mentally and physically hygienic and that idleness of any sort is likely to breed doubts and uncertainties and worries. Probably every practitioner of medicine has felt that if he could get his weary and irritable neurasthenic to care for something outside his own little circle of troubles, at work perhaps at some absorbing occupation, a cure would be accomplished. It is, no doubt, normal and right for a man to be busy, for unoccupied for any length of time, his nervous energies turned in upon themselves are likely to create mental confusion and depression.

If this is true of the chronically idle neurasthenic it is equally true of the man who has broken down under stress of work and worry. There is no more pitiable state than that of a nervous man accustomed to hard work, trying to rest by enforced idleness. A good many men take matters into their own hands and make for the woods with dog and gun. Then fully occupied and self-forgetful, they recover. But too many neurasthenics, and especially women, have no such taste or opportunity, and such a method of relief is, moreover, usually applicable to relatively mind conditions of " nervousness."

When neurasthenia is well established it is a well-known fact that outside interest and occupation can very rarely be secured. The fatigue symptom comes in and calls imperatively for attention. Whenever by a laborious process of moral suasion the patient's mind is for the time being cleared of its cloud of doubt and indecision, and an attempt is made at some simple activity, walking, for instance, the result is usually disastrous and the patient returns, not only tired, but discouraged, and worse in every way. It becomes only too evident that work or its equivalent, no matter how good it may be in theory, is impossible in practice. The rest cure suggests itself as the easy alternative, and it is applied more or less completely in almost every case of " nervous prostration." Physical rest is enjoined in the face of the fact that there may be no physical fatigue, but only something which seems like it. Very often neurasthenics do well under the rest cure, it has had great vogue and cannot fail to be helpful in many cases, particularly where there is evident lack of " fat and blood." But in many other cases physical rest, it is not necessarily mental rest, becomes a more or less vicious habit, sending the patient again and again to the sanatorium and resulting in an increasingly morbid life.

It has long been the writer's belief that some means might be devised whereby the neurasthenic or any one who, for reasons of mental and nervous hygiene, might need to change his occupation and habits of life, could do so without the shock or failure which the usual desultory and spasmodic attempts at such an action imply.

The great need seems to be to lift the neurasthenic out of his tangle of nervous symptoms, not by substituting another abnormality in the shape of unduly prolonged rest, but by bringing about by a gradual process the conditions of a normal life, a life of pleasant and progressive occupation, as different as possible from the previous life and resulting in self-forgetfulness.

Now it happens that nearly all neurasthenics are clever, adaptable people who have a good deal of artistic taste and critical ability, and it is also true that there is in mankind an inborn love of making things, of creating complex and beautiful objects out of crude and simple elements. Manual work is best, for it is objective and wholesome and trains to accuracy and precision of movement. Putting these bits of truth together it seemed that a sort of craft shop was needed where the sick could work with the well, and where the contagion of example could be depended upon and where teaching could be properly done.

The modern Arts and Crafts idea appealed very strongly, because of the growing interest in the movement and because of the clean, wholesome atmosphere which surrounds such work, and because of the many-sided appeal which such a work as the making of pottery, for instance, has to most educated minds. In order to test the soundness of these preconceptions the writer had established a little less than a year ago a practical shop for the manufacture of pottery and for the production of a variety of fabrics by means of hand weaving. The equipment was complete and included a half dozen looms, some of Swedish and some of Colonial pattern, also spinning wheels, bobbin winders, etc., and the necessary vats and dye-stuffs for color work. In the department of clay very little machinery was needed beyond the kiln for baking and glazing and the potter's wheel.

A competent teacher was secured and she, with a few assistants, proceeded to make the shop practical and effective from the mechanical and artistic point of view.

When the place was finally in running order, and an actual product began to appear in the shape of rugs and fabrics of a varied sort made

from cotton, wool and linen, also a creditable pottery product, a few mildly neurasthenic patients were introduced for a short time each day.

The shop was popular at once and had a very encouraging effect upon the early patients.

It is difficult to describe the charm of work in clay. When one has fairly mastered the simple technique, he may give full play to all his knowledge and appreciation of art in form and color. The glazing and baking finish the product, and the amateur artisan finds a satisfaction in his work which the man who works for his daily bread may rarely have.

The weaving has turned out to be comparatively simple and certain parts of it may be done at once with very quick and tangible results.

Basket making has recently been introduced and is proving very useful.

These three crafts have so completely filled the requirements that nothing else has been attempted, though a number of allied crafts, such as work in metal, wood and leather, may sometime be found useful. It may be said in passing and in justification of the assertion that neurasthenics are clever and adaptable, that the work of the patients has been surprisingly good when judged by exacting standards. The product is not trivial in any sense, and therein lies a great hope for the future, for any industry the product of which is cheap or trashy must surely come to naught and must just as surely exert an unwholesome effect upon all concerned.

Having established this shop and made it practicable for those mildly affected, the next step was to attract and hold the confirmed neurasthenic, and to escape the usual consequences of exertion. In the lighter cases, as before intimated, there was no difficulty. The surroundings were so novel and the work so attractive that before they realized it themselves these patients found themselves hard at work.

After eliminating as far as possible such evident sources of irritation as eye-strain, the problem seemed that of diminishing the prohibitive fatigue symptom. It has been frequently enough observed that these patients become fatigued and irritated from anticipation of any change or task. If this anticipatory fatigue can be avoided a great gain is at once made.

It has, therefore, become the writer's custom to begin the treatment of "nervous prostration" by a short period of rest in bed, perhaps a few days, perhaps a week, under the usual rest cure conditions. Then, without any warning whatever and, of course, with the co-operation of a nurse, the patient is required to do something. It may be only to sit up in bed for a short time. That particular act is not repeated the next day, or at least not at the same hour, and the patient has no knowledge of what is expected of him in the succeeding days. A very gradually progressive program is written out each day and intrusted to the nurse who sees that it is carried out promptly and exactly.

This device eliminates so much anticipatory fatigue and worry that progress is surprisingly rapid. The progression leads to the shop and depends upon the work there, the actual living of a rational life, to fix and render permanent the improvement. The hours of rest are gradually made shorter and the hours of work longer until the day is full of interest and self-forgetfulness and the need of prolonged rest is lost.

The results are not always uninterrupted, but they are in the line of normal living and would seem to be far-reaching in their effect upon character.

Many discouragements occur and constant vigilance and tact are required to avert disaster. But this method of treatment certainly does not require so much of the physician, for the work stands in his place and holds the patient up to the mark during his absence.

After a few weeks of work, when the inertia of months or years has been cast aside, it is remarkable to observe the change in facial expression, in precision and skill of movement and in the whole *morale* of the patient.

Although work of this sort appeals especially to people who have never done rational work, and for whom the pleasure of manual work is an absolute revelation, the plan would also seem a particularly fortunate one for those of limited means. The feeling that a useful trade is being acquired, one which may mean comfortable support in later years, if perchance the old life may not be taken up again, this assurance can scarcely be overestimated in its helpfulness. To encourage a feeling of independence it has been decided that when a patient can turn out work of value, this product may be sold through the agency of the shop and the proceeds credited to the maker.

There is no doubt that many patients undergoing sanatorium treatment are terribly handicapped by a knowledge of the expense involved.

It may be objected that a good many people will take no vital interest in work of this kind. That is doubtless true, and they may have to be treated in some other way, but already, in two instances, patients who seemed to have absolutely no interest nor adaptability have made excellent gains through persevering mechanical work of which the product was at first without value. In each of these cases interest has grown with the doing, so that at present the patients are turning out excellent work of considerable commercial value.

It is really extraordinary to observe how easily and promptly the perplexing problems of these patients' lives simplify themselves, and how quickly values readjust themselves to a reasonable standard so that the little annoyances and petty troubles take their proper subordinate places.

From the prophylactic point of view, the plan would seem to have value. It is conceivable that some such straightforward, satisfying work as this, resorted to from time to time, might, in many instances, do much toward preventing the

unfortunate mental states which come from unrelieved complications of social and business life.

In order to test more thoroughly the efficiency of treatment by work, little or no use has been made of special baths, massage and electricity. These agents are doubtless of great value and are sometimes necessary; their evil is, that they constantly call the patient's attention to himself and to his symptoms.

The one great end to be obtained is self-forgetfulness and a pride and satisfaction in work and in life.

We cannot mold our patients all alike after one pattern; each will give a different interpretation and value to his work and each must preserve his individuality, but if we give to each a fair share of the blessing of self-forgetfulness and consequent happiness we have done well and have gone far toward making it possible for the patient safely to resume his old life minus a good many of its mistakes and faults.

This method of treatment is confessedly an experiment. We are in the midst of it now and cannot foretell the final results. But accumulating indications point to the probability that fairly quick results will be obtained and that sound habits of industry will be formed which will not only relieve the existing symptoms, but will lead to more rational living and a permanent betterment of the individual, giving him among other things a higher regard for labor, a better appreciation of the products of labor and, more than all else, a fine scorn for the repose which lasts all day as well as all night and makes him think more of himself than of anything else in the world.

Since this paper was begun the writer has learned of a somewhat similar experiment which has been carried out successfully during the past four years in Zurich by a man named Grohmann, who is not himself a physician, but who works with the co-operation of some of the best physicians in Europe.

Dr. Grace Walcott of Boston has, during the last summer, maintained a sort of industrial camp somewhere in the Berkshire Hills, and I am informed that there is a similar institution in California. So far as the writer can learn, in none of these institutions is there an attempt at really practical work of a high artistic order, but the things which are made are for the most part so poor as to have little or no value. Also, in one of these places, at least, the work is made rather a side issue and permitted for only a short time each day.

In the School of Handcraft, a name which would fit the institution at Marblehead better than sanatorium, half measures and playing at work are not encouraged; the patient as soon as he is able becomes to all intents and purposes an artisan and tastes the wholesomeness of a life of labor without the hardships and trials which the real industrial work so often implies.

To summarize: neurasthenia, though so often accompanied by physical stigmata, may prove to be in a measure independent of them and largely or wholly psychic.

It is probable at least that the various cures, including rest and suggestion in its various forms, depend for their results on what Dr. J. J. Putnam aptly calls side-tracking the vicious trains of thought and habits of living and of substituting for them a less harmful, saner and more rational life. Too often, however, the substitution, having little to back it up, proves poor and incomplete.

It is hoped that the treatment by work will not only side-track the neurasthenic state, but will substitute a simple but positive efficiency which will reorganize the life of the individual on better lines and which will do it substantially and speedily, without undue mental strain on the part of physician, nurse or patient.

Perhaps the medical use of work may some day be extended to include part, at least, of the treatment in various institutions and asylums where those sick in mind are at present without occupation. Certainly, we have in work a therapeutic agent which deserves intelligent trial over a pretty wide field. If an attempt is made to carry out these suggestions in various institutions there will doubtless at first be early failures, for it is probable that a complete working plant and efficient teachers are indispensable.

The writer wishes to acknowledge the efficient co-operation of Dr. George S. Hill, who has done much toward making this preliminary work successful.

IMPROVED TECHNIC FOR END TO END INTESTINAL ANASTOMOSIS.*

BY ALFRED H. GOULD, M.D., BOSTON,
For the Division of Surgery of Harvard University; From the Surgical Laboratory of the Harvard Medical School.

THERE are three principal methods by which an end to end intestinal anastomosis may be made:

(1) The "plain" anastomosis.
(2) The mattress anastomosis.
(3) Anastomosis by mechanical devices: 1, Murphy button; 2, Harrington ring; 3, Bone or potato bobbin.

In this article the technic of a plain anastomosis will be described, the simplicity of which, it is hoped, will commend itself.

Before describing this technic, a few words will not be out of place as to the choice of a method when the surgeon is obliged to resect the bowel.

In order of rapidity of execution, the three methods may be classed as follows: (1) Mechanical devices. (2) Plain anastomosis. (3) Mattress anastomosis. (Connell.)

The average time consumed for the resection and anastomosis with mechanical devices should be in the neighborhood of fifteen minutes. Time is saved by the omission of a through and through stitch, the strength of the suture depending entirely upon one strong sero-muscular layer of

* Third paper of series.

FIG. 1. End to end. Note position of assistant's fingers, clamps, gauze beneath clamps. Area to be resected tied off with silk. Dotted line marks out future incision.

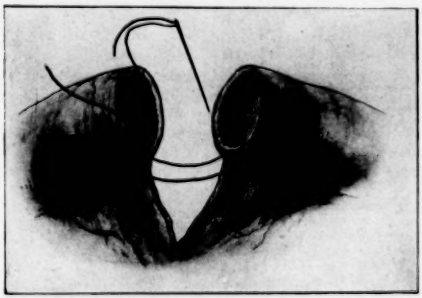

FIG. 2. End to end. Mattress mesenteric stitch.

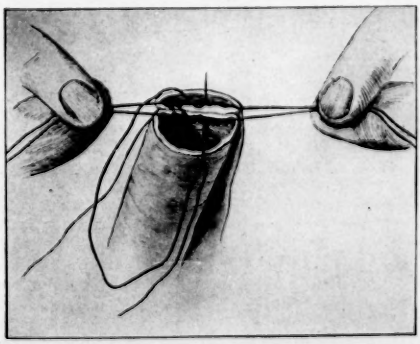

FIG. 3. End to end. First two guides exposing mesenteric third of circumference. The inner continuous chromic stitch is crossing the mesenteric border. Note that the remainder of the circumference falls away when these guides are drawn tight.

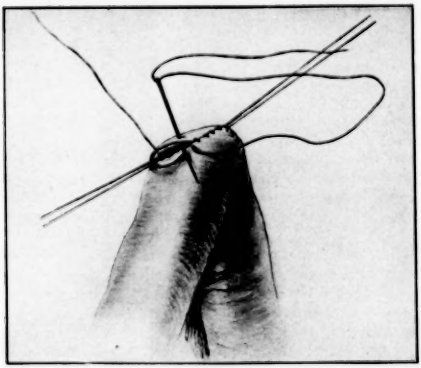

FIG. 4. End to end. This shows the continuous chromic stitch nearly completed. The guide on the left is one of the first two placed to expose the mesenteric border. Note the long end left at the first knot.

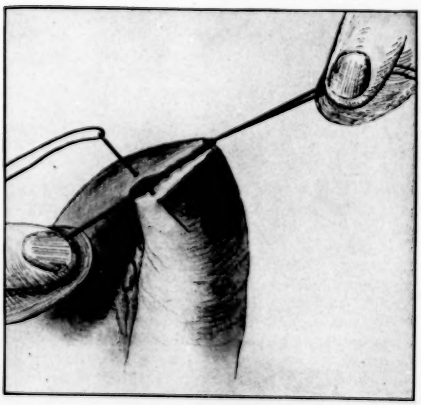

FIG. 5. End to end. Placing interrupted Lembert stitches. Note use of guides.

stitches. The Murphy button requires only a purse string suture, although few operators have the courage to close the abdomen without reinforcing the joint with a few stitches.

There are valid objections to the Murphy button. The button must be tested and found to work perfectly before it is safe to leave it inside the intestine. It is not a rarity to find at the autopsy table, that the button has given way because it was not perfect. Where it is customary to use the button more than once, an exigeant examination of the spring should be made to make sure that the whole circumference can be tightly brought together.

The Murphy button certainly has a place in end to end anastomosis because is it the most rapid method known, and it may be said that when a difference of a few minutes means life or death to the patient, the button should be put in. However, so much time is lost in the preliminaries of an operation that it is rarely possible to say that it would not have been sufficient for a longer operation had the details been more carefully arranged. The weak point in the button anastomosis is at the mesenteric border for, when the button is snapped together, a wad of fat is interposed which is much thicker than the bowel wall. To make a good serous apposition this fat must be crushed, and even then it cannot be completely flattened out. In a lateral anastomosis, on the contrary, the button gives a very good joint, since the apposed walls have an equal thickness.

The passage of a Murphy button is attended with vigorous peristaltic action and requires at least eight days and usually much longer. After watching the abdominal cramps which signal the transit of a button through the small intestines, few operators will feel as certain as before of the superiority of this instrument.

The Harrington Segmented Ring and the Robson decalcified bone bobbin are made upon the same principle. Each supplies a support to facilitate sewing, and neither causes subsequently any intestinal disturbance.

If the sero-muscular layer of stitches is perfectly placed, there is no need for an inner layer. The hemorrhage from the cut bowel edges has been controlled by a purse string suture which squeezes the bowel edge against the support. As far as personal technic goes, the segmented ring or the bone bobbin offers a more rapid method than the plain suture, though perhaps somewhat slower than the button.

Too much, however, has been said about the quickness with which an intestinal suture should be done and more emphasis should be placed upon the perfection of the joint. No situation could be imagined where more dispatch would be required than where several intestinal resections were required at the same operation. Yet it would be scarcely wise to fill the abdomen with Murphy buttons.

The "plain" anastomosis and the mattress anastomosis are both good. The mattress anastomosis of Connell depends upon one layer of stitches to join the serous surfaces, and control hemorrhage. It is an awkward anastomosis to do well, for the last half of the circumference is sewed by reversed stitches which have to be tied inside the bowel.

The stitches must be placed close together, else bleeding will result from the intervening cut edges. To place the mattress stitches close enough to control bleeding requires a large number and takes time. If the end result were better than other sutures, the time would be well spent, but the only advantage of the suture which has appealed to the writer is the narrow edge which is turned in by the stitch.

The plain anastomosis described below has few original features, but it is hoped the few changes which have been made will simplify the operation.

The only original feature of this technic is the method of beginning the first layer of continuous stitches. It is customary to start at the free edge of the bowel and sew toward the mesentery. This makes it necessary to work in a pocket while crossing the mesenteric border. For this reason it is preferable to place the first guides in such a manner that the mesenteric border will be first developed and, when this has been sewed across, the rest will be plain sailing. The size of the catgut is important; No. 0 chromic gut is amply strong and threads easily in a No. 3 milliner's needle. Attention should be called to this needle. It is twice or three times the size of the usual needle employed and will be a revelation to those who have struggled with fine needles. No. 1 Pagenstecker celloidin thread, and No. 0 chromic gut thread so easily that it can be done without any delay during the operation.

The application of clamps in end to end anastomosis is simple. Short jaws are preferable, which will merely include the bowel itself. The straight circumcision clamp is very easy of application and holds perfectly.

Technic. — This anastomosis is made with three separate stitches:

(1) The mattress mesenteric stitch. (Maunsell, Connell.) (2) The continuous suture of all coats. (3) The interrupted or continuous sero-muscular stitch. (Cushing or Lembert.)

The coil of intestine to be resected is withdrawn from the abdomen, and in order to avoid subsequent soiling of the wound, the intestinal contents are pushed to either side by stripping with the fingers. Clamps are then applied to the intestines, leaving a margin of about three inches on either side of the area to be cut out. Finally a handkerchief gauze is wrapped around the intestines beneath the clamps to isolate the field of operation from the abdomen. To prevent spilling out of whatever contents there are left in the resected portion, clamps or circular ties will be required.

The coil is grasped by the fingers of an assistant, about an inch on either side of the point where the incision is to be made, and the operator cuts carefully into the bowel with a knife, wiping

away the blood and the intestinal contents with the left hand. It is rather better to finish the resection with scissors, in order to watch each side as it is cut away. There is always bleeding from the vessels in the triangular space at the mesenteric attachment, and it is better to tie these at once at the cut edge rather than to pick up the vessels farther back and risk a weak blood supply at the mesenteric border. It is traditional to cut the bowel away obliquely to make sure of the blood supply on the free edge, but this obliquity need be very slight, because practically the whole edge which may slough will be turned in, even if the bowel be cut off square. The incision is finally continued down through the mesentery for two or three inches, avoiding the evident vessels, and tying when necessary. After enveloping the cut bowel ends in gauze, the second incision is made through the intestine on the other side, in the same manner. Finally the narrow pedicle of mesentery, which remains, is tied and cut, which completes the resection.

The placing of the (Maunsell) mesenteric mattress stitch forms the starting point of the anastomosis. This should enter and leave the bowel at least an eighth of an inch from the cut edge, but should penetrate the mesenteric space and the peritoneum farther forward. This furnishes an ample width of edge for the subsequent continuous catgut stitch, without separating the bowel edges, with a thick mass of fat. The mesenteric third of the bowel circumference is rather inaccessible, and, to bring this portion forward, guide stitches are introduced with the ends left inside. Upon tightening the guides, the remaining circumference of the bowels falls away and the inverted edges are freely exposed at their mesenteric attachments.

To control hemorrhage and bring the cut edges together, a continuous chromic catgut stitch is used, size preferably No. 0. This stitch starts near one of the guides and is knotted on the outside, where a long end is left to tie to the last stitch after it has completely approximated the circumference of the cut edges. The mesenteric third of the cut edges is exposed by tightening the guides, and the continuous through and through stitch passes across from one guide to the other. When the second guide has been reached, a third guide is introduced half way between the first two, on the free edge of the bowel opposite the mesenteric attachment. The ends of this guide are left outside. Traction on this and on the lower guides will make easy the completion of the continuous suture. The last stitch is knotted to the long end left on the first knot and the guides removed. The continuity of the chromic stitch must be broken at points an inch or so apart. This makes it difficult to narrow the lumen by drawing the catgut into a purse string, and also gives greater security to the joint.

The most important step of the anastomosis is the sero-muscular stitch. Both continuous and interrupted stitches are employed for this purpose, but the Lembert interrupted is the more reliable, on the whole. The first interrupted sero-muscular stitch is placed opposite the mesenteric border, and is followed by a stitch at the mesenteric edge on either side. The ends of these three stitches are left long as they make excellent guides to the remaining stitches, which are introduced in the usual way. The mesentery is finally caught together by a few interrupted catgut stitches.

OBSERVATIONS ON EXPERIMENTAL DRAINAGE OF THE PERITONEAL CAVITY OF CATS.

BY FRED T. MURPHY, M.D., BOSTON.
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DRAINAGE of the abdominal cavity as practiced in cases of intraperitoneal infection may be divided into two main groups. That is, the drain is placed either with the idea of making a limited septic area of the cavity extra-peritoneal, or for the purpose of draining as much of the general septic cavity for as long a time as possible. The degree of success which follows such a surgical procedure should depend, if the theory of drainage is a correct one, in a considerable measure, upon the accomplishment of a definite purpose. These observations have been made in order to ascertain to what extent the practice is feasible.

Experimental observations have determined that the serous surfaces of the intestine or peritoneum after mechanical injury and asepsis and with proper approximation will agglutinate fairly solidly within the first twenty-four hours. Clinical data have furnished like results. A similar reaction follows the introduction of a foreign body into the peritoneal cavity, and the foreign body is " walled off " by adhesions. In the time of this reaction depends, it seems to me, in a great part, the effectiveness of the theory of drainage.

In considering the normal process of repair of the peritoneum, we are dealing with a surgically clean tissue, and the fact must not be overlooked that with the peritoneum, as with muscles, agglutination or healing may be delayed by infection. If, however, the infection is of such virulence as to have altered so materially the power of reaction of the peritoneum that a walling off does not follow the introduction of a wick it may be questioned, I think, whether drainage can be of great value in the case. If ever it is advisable to drain the whole septic cavity and if the general cavity is walled off from the drain within a few hours the attempt has been made to no avail. On the other hand, if the purpose of the drain is to make a limited septic area extra-peritoneal and if adhesions do not form within a comparatively short time the procedure misses, in the main, its theoretical effectiveness.

The purpose of the following experiments has been to determine the time which elapses between the introduction of the drain and the formation of walling off sufficiently strong to prevent the drainage of the peritoneal surfaces not in direct

approximation to the drain. It was thought that if the different materials used increased or decreased the interval, that the data might be of value in helping to establish the rational use of various drainage materials in cases of intraperitoneal infection.

The experiments were made on cats. The operations were performed under full ether anesthesia and the animals were killed with chloroform so that no pain was caused. In parenthesis it may be added that the animals were apparently comfortable during the time they were under observation. The technic of the experiments was as follows: At the first operation an incision was made over the left rectus muscle just above the bladder and the peritoneum opened after splitting the fibers of the rectus. The drain was then directed into the pelvis on the left of the large intestine. No attempt was made to manipulate the omentum except to push it aside in order that the drain would be actually free within the cavity. The incision was then closed with through and through sutures, care being taken not to constrict the drain at the belly wall. After various intervals of time a second operation was performed. The animals were placed on a board inclined at 20° and the peritoneum was opened at the left costal border about two inches from the median line. Through this opening a funnel was introduced on the left of the large intestine so that there would be no barrier of mesentery between the fluid and the drain. Then the belly was filled with a gelatine mass stained with carmine, such as is ordinarily used for anatomical injections. This actual pigment was found to be necessary to prevent the leaking and absorption of the stain by the tissues such as occurs with the aniline dyes. With the body at an angle of 20° the level of the gelatine in the epigastrium was higher than the external end of the drain so that if the drain was not walled off by adhesions, there must be an escape of the fluid which when warm is like water. The pressure of the mass or the irritation caused in the majority of the cases a peculiar twitching of the belly walls which, taken together with the strain of struggling at the second etherization, tended to break up weak adhesions. Moreover the walling off would not take place so quickly with a normal peritoneum as with an irritated peritoneum which had already begun to form adhesions. Hence these results would show a maximum rather than a minimum interval. The animals were kept in this inclined position for ten minutes after the introduction of the fluid. If the fluid did not escape freely within the prescribed interval the bodies were placed in cold storage and examined after the gelatine had set. In this way it was possible to see just how far the fluid had gone toward the drain. Gauze, rubber tissue, glass tubes and cigarette drains were used. In two cases the belly was filled with normal salt solution at the time of the introduction of the wick, and in one other case a general purulent peritonitis was caused which was drained at a second operation.

The following tabulations illustrate the results of the experiments:

MATERIAL USED FOR DRAIN.	TIME AFTER INTRODUCTION OF DRAIN.	IMMEDIATE RESULT.	AUTOPSY.
Gauze	Few minutes.	Perfect drainage	
"	7 hours.	After few minutes began to ooze freely.	
"	10¾ hours.	Drainage in 8 minutes, but only after violent vomiting.	
"	15½ hours.	After 10 minutes very slight staining of wick.	Generally walled off by omentum, but at belly wall some entrance of mass.
"	18 hours.	No drainage.	Complete walling off by omentum.
"	22 hours.	No drainage.	Little gelatine in meshes of gauze, but generally well walled off.
"	24½ hours.	No drainage.	Wick completely surrounded by omentum.
"	44½ hours.	No drainage.	" " " "
"	46 hours.	No drainage.	" " " "
		(Belly filled with normal salt solution in following two cases.)	
Gauze.	23 hours.	No drainage, even after violent vomiting.	Wick generally well walled off, but in meshes of gauze a little gelatine.
"	23 hours.	No drainage.	Wick surrounded by omentum, but at very tip some gelatine had leaked in.
		(General peritonitis caused in following case before draining.)	
Gauze.	24 hours.	Free drainage.	No walling off.
Cigarette.	18½ hours.	No drainage.	Tip of gauze buried in pocket of omentum.
"	25 hours.	No drainage.	Rubber tube walled off. Between tube and gauze a little gelatine had leaked in. Perfectly walled off by omentum.
Rubber tissue wick.	24¾ hours.	Immediate and free drainage.	
Rubber tissue wick.	39 hours.	Within three minutes free drainage.	
Rubber tissue wick.	52 hours.	Almost immediate free drainage.	
Rubber tissue wick.	52 hours.	Free drainage after vomiting.	
Rubber tissue wick.	72 hours.	No drainage.	Perfect walling off by omentum.

MATERIAL USED FOR DRAIN.	TIME AFTER INTRODUCTION OF DRAIN.	IMMEDIATE RESULT.	AUTOPSY.
Rubber tissue wick.	72 hours.	No drainage.	Perfect walling off by omentum.
Glass drainage tube.	18 hours.	Immediate free drainage.	
Glass drainage tube.	30 hours.	Immediate free drainage.	
Glass drainage tube.	43 hours.	Almost immediate and perfectly free drainage. At first around and then through tube.	
Glass drainage tube.	68 hours.	Drained after five minutes, but not freely.	End of tube in mass of gelatine. Generally walled off by omentum.
Glass drainage tube.	75 hours.	After two minutes slight staining. After severe vomiting free drainage around tube.	Tube had moved to the right side. It was plugged and walled off by omentum except just at the belly wall.
Glass drainage tube.	78 hours.	No drainage. Cat kept in inclined position for 15 minutes.	In moving the cat from the table the thighs were sharply flexed thus pushing the tube down. At this as if the walling off omentum had been torn the fluid rushed out.

Roughly summarized, the gauze and cigarette drains failed to drain the general cavity after about eighteen hours, and the rubber dam and glass tubes after about the third twenty-four hours, the difference in the time representing the difference in the stimulating effect of the various materials on the peritoneum.

In all instances, the omentum was the active agent in the process of walling off, the actual adhesions between the loops of intestine being difficult to demonstrate. While the omentum in the cat is extremely large, it is not improbable, judging from findings at operation and autopsy, that the human omentum when large plays an equally active part.

The single example of a general purulent peritonitis which was produced illustrates a condition of the peritoneum which is comparable to a sloughing infected wound elsewhere in which the power of normal reaction of the tissues on the surface has been destroyed, and in which the drainage was useless.

That the cigarette drains should have acted like gauze rather than rubber must be explained on the ground that the tip of gauze was a sufficient extra irritant to set up the defensive reaction of the omentum which, when once started, enveloped the rubber tube as well.

As the amount of normal salt solution which can be put into the belly of a cat is comparatively small, and as the position of the wick is most favorable for immediate dependent drainage, it may be that the escape and absorption were so rapid that we were dealing practically with a dry peritoneum. Considering, however, the rapidity with which normal salt solution is absorbed from the human general cavity, it is difficult to see how the presence of the fluid can materially effect the formation of adhesions.

If we disregard the effect on hemorrhage and the pain of removal and consider only the effectiveness of the drain as such, it would seem from these experiments that the usual drainage materials might also be separated into two main groups, each having special advantages when used in its proper field. That is, in the group of cases in which it is desired to make a given septic area extra-peritoneal as speedily as possible, the materials which are walled off within the first twenty-four hours would be indicated. Where it is necessary to drain the general septic cavity for as long a time as possible that group of materials which is walled off only after about the third twenty-four hours should be preferred.

Theoretically, drainage would seem to be of great value in those cases in which it is desirable to make a limited septic area extra-peritoneal.

The value of a drain as a drain of the general septic cavity after about seventy-two hours could not be demonstrated.

A CONSIDERATION OF AUTO-INTOXICATION AND AUTO-INFECTION AS CAUSE OF VARIOUS MENTAL DISORDERS.

BY L. VERNON BRIGGS, M.D., BOSTON,
Physician to the Mental Department of The Boston Dispensary.

(Concluded from No. 1, p. 5.)

DR. E. C. DENT, Superintendent of the Manhattan State Hospital, West, Ward's Island, New York City, says: "There is no question in my mind that a number of psychoses have as their basis auto-intoxication. It is quite probable that in course of time dementia paralytica, dementia precox and the insanities occurring in epilepsy will be traced to auto-intoxication. We have for some time been making careful studies in this direction, but as yet I feel that the results we have obtained have not been sufficiently established to justify me in bringing the matter before the profession. It is conceded that the most prominent physical symptoms we find in insanity is that of disturbance of nutrition, due to derangement of the gastro-intestinal tract. Our principal aim is to restore as quickly as possible the normal functions of the body, and our treatment can be summed up in two words, eliminative and supportative. I feel that it is an important field that has not been given the consideration it should."

Dr. H. E. Ellison, Superintendent of the Matteawan State Hospital of New York, says: "Many manifestations of mental disease depend upon

auto-infection, not only from the intestinal tract, but upon disorders of other excretory channels. Derangement of the digestive organs and consequent evils, are, in our opinion, responsible for many conditions of ill health and for various forms of insanity. For four or five years medical literature was filled with discussion upon this topic. Personally we have felt that it is responsible for many maniacal outbreaks, for many states of mental depression, and have always directed our attention in a therapeutic way to such conditions, often with satisfactory results. In melancholy if the patient can be made to think that he has some tangible foe to combat he will feel much relieved in mind; that his liver, his digestion, his intestinal functions are at fault, as they usually are, and that his mind is depressed by an impoverished circulation due to toxic agencies in his blood, he will feel that he has something to hope for in the way of eventual relief."

The derivation of the word "melancholia" throws some light upon its most common etiology; the two Greek words "*melas*" meaning black, and "*chole*" meaning bile, while not accepted in their original application and significance in the sense of meaning that melancholia is actually due to bile in the blood, yet disturbances of the digestive regions, the intestinal canal and the liver have a most important relation to the production of the disease.

Dr. H. L. Palmer, Superintendent of the Utica State Hospital, New York, says: "I think in most cases an hereditary tendency or a neurotic disposition will be found to exist in conjunction with the auto-intoxication. It is my practice to look thoroughly to the alimentary canal and relieve any and all irregularities so far as possible. There is no doubt a disturbed metabolism in many forms of mental ailment, particularly the various forms of the depressive psychoses. I do not, however, look upon auto-intoxication as the main cause in the great number of cases."

C. Spencer Kinney, M.D., of the Middletown State Homœopathic Hospital, New York, in the State Hospital's *Bulletin*, Vol. II, p. 3, says, "Many cases of melancholia have auto-intoxication as a prominent feature."

The Fourteenth Annual Report of the New York State Commission, ending Sept. 30, 1902, gives diseases of the digestive system and blood and circulation as the cause of 514 out of a total of 1,808 deaths which they had in all of their insane hospitals.

Dr. Edward N. Brush, Superintendent of the Sheppard and Enoch Pratt Hospital, Maryland, says: "Students of psychiatry have recognized for a long time that what is commonly called auto-intoxication probably enters largely into the causation of a large number of cases of insanity, but we know too little of auto-intoxication to be able to determine exactly what the form of poison is to be able to classify our cases in such a way as to definitely state which are clearly cases depending upon auto-intoxication as the exciting cause and which are not, although in the majority of instances a careful examination of the case and a thorough knowledge of the previous history of the case will throw much light upon the subject. Not only is auto-intoxication looked upon as a causative factor in many cases of insanity (and by auto-intoxication, I suppose you mean the poisoning resulting from the defective elimination from the body of certain products of digestion or from formation of a poison in the digestive tract or in certain of the glandular elements of the body having to do with the tissue metabolism), but there are many forms of insanity that are clearly recognized as toxic in their origin, eliminating from this category cases which are plainly toxic originating from alcohol, minerals like lead, and certain drugs. I have for a number of years now in lecturing to students pointed out the resemblance between toxic and auto-toxic insanity in their clinical manifestations and that a large number, certainly in their early stages, closely resemble the deliria observed in pneumonia and typhoid fever, for example."

Dr. Geo. O. Welch, Medical Superintendent of the Fergus Falls State Hospital, Minnesota, says: "Speaking in general terms the larger number of our cases are suffering from auto-intoxication on admission to the hospital. I do not mean to say that this is the cause of the insanity but it certainly has considerable effect in prolonging the unbalanced mental condition and making it more severe; for in most of the cases restoring the physiological functions to healthy action, especially paying attention to the digestive tract, so that the food is properly assimilated, will produce a marked change for the better in the patient's mental conditions."

Dr. H. A. Tomlinson, Superintendent of St. Peter's State Hospital of Minnesota, says: "Practically every patient received in this hospital is suffering to some extent from the ill effects of auto-intoxication."

Dr. W. B. Fletcher, an alienist of Indianapolis, Ind., says: "It is my opinion that by far the larger number of cases of epilepsy and insanity are due to auto-toxic conditions; mal-assimilation most common, hepatic and renal follow in order. Hepatic toxins most frequently manifest in melancholia; renal in acute mania of confusional insanity, so called, with delirium. As to classification, I am inclined to the oldest, that of Hippocrates, if I use any, *viz.*, melancholia and mania, and could, like Cullen, if desired, form a hundred sub-classes, and endless varieties. In some cases of melancholia I have seen almost every form of insanity protrayed in its various stages, and what seems a case of acute mania to-day may be profound melancholia to-morrow. Several persons under the influence of the same poison will not have similar psychical reactions; auto-toxic effects are as different in their manifestations as there are differences in the amount of gray matter and the structure and number of convolutions, which differ in all persons as much as do their facial expression. The terminal arteries in some cerebral ganglia and convolutions are abundant in one person, in another with the same weight of brain there are but few, therefore,

more or less toxins are received, and different phenomena result from the same remote cause."

Dr. G. J. Rogers, Superintendent of the Northern Indiana Hospital for Insane, Logansport, Ind., says: "Deranged mental states clearly due to auto-intoxication have not been infrequent, and treatment directed towards the restoration of physiological nutrition and excretion effects a cure, often very promptly."

Dr. S. E. Smith, Superintendent Eastern Indiana Hospital for Insane, says: "Cases of auto-intoxication due to the absorption of the products of intestinal sepsis and the like we classify under the true insanities."

Dr. Albert E. Stern, an alienist, of Indianapolis, Ind., says: "While there must be no doubt whatever that mental abnormalities may arise through toxic influences or to autotoxic genesis, the latter should probably not be classed with the former. While I believe quite firmly that very many different phases of mental alienation may arise in different individuals upon the same or similar basis due to disturbances of metabolism, I am not so positive upon this point of cause and effect in these cases. It is my invariable rule to cure as far as I can the concomitant elements of autotoxicity in the case, because I have long ago learned that the latter must be overcome, no matter whether it is secondary or primary in its relation to the mental state. Personally, I differentiate between the externally toxic and the internally toxic."

Dr. Max E. Witte of the Clarinda State Hospital of Iowa says: "I will say that I have been convinced by careful study of many cases of insanity that the first beginning of many forms of acute affective disorders, such as melancholia and mania, often, if not altogether, have their primary inception not in the brain, but elsewhere, usually in the organs of the abdominal cavity. I have been led to this belief through the study of the emotions associated with the functions, either healthy or disturbed, of the vital organs of digestion, nutrition and elimination, including the hemapoietic structures, such as the spleen and lymphatic glands. I am satisfied researches through the laboratory will be rewarded by important discoveries in the future. A routine examination of the cases coming in for many years have, on the whole, revealed a deterioration of the blood, more especially a diminution in the formal elements of the blood, particularly in the red corpuscles, also a corresponding lowering in the percentage of hemoglobin. These uniform findings certainly argue disordered and diminished metabolism, but of course, I have not the exact data to determine definitely whether this diminution should be looked upon in the light of result or of cause; possibly both, since it seems to be a segment of a vicious circle. As to auto-intoxication, it is a matter of every-day experience and observation that insane patients coming here, whether the disease has existed a long or short time, are usually obstinately constipated, and one of the first indications in treatment is a measure adapted for the evacuation and regulation of the intestinal tract. So far as we can usually learn from inquiry of the more intelligent patients or from their friends, this condition has existed during the duration of the disease and often prior to it. Now and then we have met with cases of marked and grave dementia associated with a myxedematous condition of the skin, who responded promptly to and recovered under the administration of thyroid extract. We have had no cretinism so far in this part of the country."

Dr. J. W. Wherry of the Clarinda State Hospital, Iowa, in a paper written for the *Alienist and Neurologist* of May, 1904, advocates limiting the term insanity to delusional cases and gives as a part of his classification:

- Insanity
  - Toxic
    - Infection psychoses
    - Intoxication psychoses
  - Auto-toxic
    - Mania
    - Melancholia
    - Manic-depressive
    - Paranoia
    - Exhaustion psychoses

All of these he classifies as results of defect of the mind rather than of defect of the brain.

In the third Biennial Report of the Board of Control of State Institutions of the State of Iowa, Chapter 6, on Insanity, I find the following: "It is rarely that we find a case of insanity in which there is not associated, and very frequently causing the disorder, a derangement of digestion, nutrition, or elimination. The first urgent need to be met by treatment is the restoration to normal activity of some vital organ or organs. In other words, a great majority of patients coming under care require treatment for diseases other than insanity, and happily, in many, with recovery from bodily disease, restoration to mental integrity takes place."

Dr. James L. Green, Superintendent of the Nebraska State Hospital for the Insane, says: "In my judgment, the majority of cases of the depressed types of insanity admitted to the hospital are due to some form of auto-intoxication, as, indeed, are many of the cases of acute maniacal excitement. Especially am I convinced that all of the cases of acute delirious mania, sometimes called Bell's mania, are of this origin."

Dr. T. J. Mitchell, Superintendent of the State Insane Hospital of Mississippi, says that for two years he has been impressed by the fact that quite a number of diseases are due to auto-intoxication, both mental and heart failure, and that recently he has been paying special attention to the bowels of his patients as being the medium through which is the chief source of auto-intoxication, and he hopes by close attention to derive some useful facts.

Dr. Dwight S. Moore, Superintendent of the State Hospital for the Insane of North Dakota, says as to disturbed metabolism: "In fact I think most of the future progress of treatment is going to come from a better understanding of these conditions."

The Biennial Report of the Alabama Insane Hospitals for 1901–02 gives on page 20 as the cause of death in four cases, "Auto-intoxication." J. T. Searcy, M.D.

Dr. W. A. Gordon. Superintendent of the Northern Hospital for the Insane, Wisconsin, says: "Various conditions which are called acute mania and sometimes melancholias are, I believe, caused by intoxicating elements. We seek to eliminate and at the same time to improve the patient by a liberal, easily digested diet. We eliminate by mercurial and saline cathartics, by the wet pack, hot and cold, by the sweat box, electricity and steam, by frequent bathing and by insisting on copious ingestion of water by our patients. It is in this field that I believe the greatest advances will be made in our knowledge of the causes and in the treatment of insanities."

Dr. Moses J. White, Superintendent of the Milwaukee Hospital for Insane, Wauwatosa, Wis., says,that "almost every case is pursued on the assumption that the element of auto-intoxication is present in a greater or less degree and we have had very gratifying results by the pursuit of this theory and the treatment adapted thereto. The measures chiefly used to relieve this condition consist in increasing the action of the skin and bowels by means of Turkish baths and massage and the administration of saline cathartics persistently and the employment of a high enema, and we found that these methods proved to be very efficacious."

Dr. M. L. Graves of the Southwestern Insane Asylum, Texas, says he regards auto-intoxication an exciting cause in the development of mental disturbances, especially melancholia; 33% of his deaths in 1902 were caused by diseases of the stomach, lungs, bowels and kidneys.

Dr. F. Forschheimer of Cincinnati, Ohio, while claiming to have disproved the conclusions of Bouchard by a large number of experiments made by himself, is still a firm believer in the important rôle played by auto-intoxication. He says: "We all recognize the psychoses of Graves' disease, and again the psychoses characterized by depression which are absolutely relieved in a large number of cases by the treatment of intestinal auto-intoxication. Another class that has been relieved on the principle of auto-intoxication are some of the menopause psychoses. Unfortunately the only criterion we have for judging of the existence of auto-intoxication is the therapeutic result."

Follin and Shaffer, in their reprint on Phosphate Metabolism, state as a result of their work in the Chemical Laboratory at the McLean Hospital on a case of Manic Depressive Insanity, the following: "The existence of an unmistakeable periodicity in the elimination of phosphoric acid through the kidneys corresponding to the periodicity in the mental condition of the patient is, we think, proved by our analysis and experiments."

Heinicke in his psychiatric practice was impressed with the frequency of phosphaturia and carbonaturia in his patients. He has found manifest or latent ammonuria or phosphaturia in every patient exhibiting a psychosis. He further noted that the urine returned to normal as the mental affection progressed toward recovery. The phosphaturia generally accompanied the height of affection. It is possible that the subsidence of the ammonuria or phosphaturia may be an aid in prognosis, and their absence may also serve to reveal simulation.

Dr. Arthur W. Hurd, Medical Superintendent of the Buffalo State Hospital, Buffalo, N. Y., says, in a paper which he wrote in 1897: "It is not in old chronic patients with fixed delusions and with an apparently healthy digestive apparatus that acute intestinal intoxication is to be expected, but rather in acute cases with changing delusions, muttering incoherence, restlessness, constipation, elevated temperature, offensive breath, and dry, hot or clammy skin. It is conceded by many and an increasing number of students, that intestinal putrefaction is evidenced by the presence of indican in the feces or by the conjugate sulphates and indican in the urine. In suspected cases the examination of the dejecta should be made in the laboratory as corroborative proof, though their absence would hardly justify the observer in withholding the measures necessary for relieving the condition referred to." Dr. Van Gieson, in discussing Dr. Hurd's paper, says: "After all, this theory is not entirely new, but is simply an extension of the old humeral theory of disease which, in its relation to the induction of mental disease, was expressed so well a hundred years ago by Benjamin Rush, who declared in substance that madness arose because the brain shared with other organs in the body the damage inflicted by gout, dropsy, rheumatism, eclampsia of pregnancy, the fevers and the like. Excluding cases of insanity of psychic origin, we must conclude that a good share of mental disorders is to be ascribed to a toxic agency, particularly those belonging to the most subtle class of poisons, the autogenous category. Any thorough comprehension of the toxic basis of mental and nervous disease beyond speculative hypothesis has been rendered possible only within very recent times. The precise knowledge of the structure of the nervous system attained by the application of the Golgi methods, the clear insight into the action of the bacterial poisons upon the tissues given by experimental pathology, and, above all, the progress of modern cytology and the application of its methods in pathological research, have at last removed the barriers to comprehensive investigation of mental and nervous diseases. Much time has been wasted and much confusion has arisen in the investigation of neural disease by studying the nervous system as something apart from the rest of the body, and often enough it has been made to appear that the nervous system had a radically peculiar structure of its own, and a *sui generis* set of pathological changes different or distinct from lesions elsewhere in the body."

A prominent dentist of Boston says: "I think auto-intoxication in the alimentary canal plays

an important part in the infection of the mouth. It has seemed to me, in my examinations of the saliva and of urine in cases of interstitial gingivitis, that I have found the most important indication for treatment to be the thorough cleansing of the alimentary canal. One patient may show uric acid diathesis and another only poor nutrition, but in most cases there is a failure on the part of the patient in his daily life to have the alimentary canal thoroughly clean, and as a result he becomes auto-intoxicated."

Dr. Geo. F. Keene, superintendent of the State Hospital for Insane at Howard, R. I., says that he believes that manic depressive insanity is chiefly caused by auto-intoxication. In 1894 he wrote an article to the BOSTON MEDICAL AND SURGICAL JOURNAL in which the idea of auto-intoxication was given great prominence. From it I quote the following: "Do we not know that a failure to excrete waste products has a marked toxic effect upon the brain and nervous systems, producing convulsions, coma and insanity?" "Why cannot leucomaines act as destructively as alcohol?" "Had the scientific physician been satisfied with the germ theory the history of ptomaines would have been lost to us." "Each vitalized cell in the animal body, as a result of its own vitality, disintegrates and regenerates itself. This disintegration is death; this regeneration is life; and hence, when we begin to live, we begin to die. Health is dependent upon the incessant formation, transformation and elimination of organic materials. We constantly bear about within us the *effete* débris of our living selves. We are constantly burning; the fire must be fed, the gas carried off, the heat utilized, the ashes withdrawn. The liver and the kidneys are our stokers, the lungs and skin our chimney, the intestines our ash-pit, the blood our forced draft. Comparatively recent research has discovered that there are present in the body, both as the result of normal physiological action in health and of pathological (or bacteriological action, if you will) in disease, certain chemical compounds called alkaloids, which have been classified (according as they originate from germ action or dead albumins, or all activity in vital tissues) as ptomaines and leucomaines. Both are crystallizable and capable of forming salts, and both are more or less active poisons. How recently the Erlich test of typhoid has been presented to us, showing the formation in the intestines and excretism in the urine of a chemical substance recognized by certain reactions. Certain non-crystallizable nitrogenous substances which are elaborated in the animal economy and are more toxic than either ptomaines or leucomaines, have been recently isolated, and, for want of better a name, have been called extractives, toxins, chemical X-Y-Z's." Spitzka says: "There is no clinical difference between the condition of many dyspeptics, who never become maniacal, and some maniacs in the prodromal stage of their disorder."

Such are the statements of men who from their positions and experience are justified in having definite opinions upon such matters. My own experience leads me to an even stronger feeling in regard to the place of the auto-intoxications in the etiology of mental disorders, and it is hoped that, with the work which is being carried on, more conclusive proof in support of these opinions can be presented in the near future.

Clinical Department.

A CASE OF ACUTE LYMPHATIC LEUKEMIA IN AN INFANT.

BY RALPH C. LARRABEE, M.D., BOSTON.

Instructor in Clinical Medicine and Hematology, Tufts Medical School; Physician to Out-Patients, Boston City Hospital; Physician for the Children's Department, Boston Dispensary.

Summary. — Child six weeks old when first seen, with typical lymphatic leukemia. White corpuscles 918,000, of which 93.2% were lymphocytes. Platelets nearly absent. Death after a month with symptoms of respiratory obstruction.

Rose S., six weeks old, was brought to the Children's Department of the Boston Dispensary on June 25, 1903. The family history was negative. The patient was the only child of healthy Russian Jewish parents. She was born May 14, 1903, after an easy, non-instrumental labor, attended from the Out-patient Department of the Boston Lying-in Hospital. The birth-weight was six and three-quarters pounds. Nothing abnormal was noted at the time of birth or during the puerperium. She was breast fed. After the sixth day, as she cried incessantly, the breast feeding was supplemented by a mixture of milk and boiled water. She was brought to the dispensary because of a slight attack of diarrhea and vomiting of one day's duration.

Examination showed a fairly developed but poorly nourished child, weighing seven pounds and one ounce. The head, chest and extremities were normal. The liver was normal. In the left hypochondrium, in the position of the spleen, could be felt a movable mass extending from under the ribs to slightly below the level of the umbilicus. The edge was sharp. Numerous nodules, varying in size from peas to marbles were felt in the groins and axillæ. The abdomen was slightly distended, tense and apparently tender.

The blood was first examined on June 27, the forty-fifth day of life, with the following results: Hemoglobin (Tallqvist method), 60%; red corpuscles, 4,392,000; white corpuscles, 918,000.

A differential count of a thousand white corpuscles, stained according to Wright's method,[1] gave the following results: Polymorphonuclear neutrophiles, 0.5%; small mononuclear basophiles (lymphocytes), 93.2%; large basophiles (large mononuclears and transitionals), 5.9%; eosinophiles, 0.1%; x-cells, 0.3%.

The basophilic (non-granular), mononuclear cells, which comprised over 99% of the leucocytes present, were of all sizes, so that the distinction between large and small forms was quite arbitrary. In some there was considerable protoplasm, but in most there was only a narrow rim of it about the nucleus. Some appeared like free nuclei. The cells denominated x-cells were large, with single, pale nuclei filling nearly the whole cell, the blue protoplasm studded with small, deeply stained, reddish, oval or round granules. They should, perhaps, have been classed as myelocytes. Obvious myelocytes were absent, but prolonged search disclosed a single cell with neutrophilic, granular protoplasm, and a large, slightly indented nucleus. Dur-

ing the above count, no mast cells or nucleated reds were seen, but prolonged search disclosed very rare normoblasts and equally rare mast cells. There was rather more than normal variation in the size and coloring of the reds. Slight poikilocytosis. No tendency to large forms. The platelets were very greatly reduced, a half hour's search showing but five or six. Iodophilia negative.

The patient lived a month. Treatment, apart from that directed at the digestive disorder, consisted of arsenic. Even in minute doses, however, Fowler's solution was not well borne by the stomach and had to be frequently interrupted. Although the diarrhea was only in part relieved, the child gained a half pound in weight and appeared to do very well until July 25, a month after the diagnosis was made. On that day she was brought in by her mother in a state of collapse with marked cyanosis, dyspnea, retraction of the chest in breathing and other evidences of obstruction of the larynx or trachea. There was no membrane in the throat, but in one nostril was a small, yellowish mass, the nature of which, in the child's condition, could not be further explored. The voice was not entirely lost. There were a few small hemorrhagic spots on the abdomen. As intubation or tracheotomy seemed urgently needed, the child was immediately transferred to the hospital, but she died before reaching there. No autopsy was permitted.

Leukemia may occur at any age, but it is rare in infancy, much more so than later in childhood. Morse [1] in 1894 collected twenty cases of infantile leukemia from the literature, most of which he rightly states must be excluded because of faulty methods of diagnosis. He adds one case of his own which he considers to be of the mixed cell type. Audeoud [2] observed fifty-six cases of lymphatic leukemia in children, eleven of which occurred in the first year of life. He gives no further details. The cases of acute leukemia in childhood, as summarized by McCrae [3] in 1900, included thirteen undoubted cases to which he added one more. But one of them, that of Cabot, not reported in detail, was an infant. The case of Bloch and Hirschfeld,[4] a child of eight months, should perhaps have been included. More recently a number of cases of leukemia under two years of age have been reported. The following may be accepted as reasonably certain: (1) McCaw,[6] twenty months, acute lymphatic. (2) Strauss,[7] thirteen months, acute lymphatic. (3) Vermehren,[8] twelve weeks, acute lymphatic. (4) Welt-Kakels,[9] eighteen months, acute lymphatic. (5) Glinski,[10] one year, acute lymphatic. (6) Scott,[14] nine months, chronic lymphatic.

The following recent cases are probably leukemia, but must be accepted with reservations as the diagnoses are doubtful or the descriptions incomplete: (1) Miller,[11] age eight months, acute, no differential count. (2) Rolleston and Latham,[13] eighteen months, acute, mixed-celled, no counts of red or white corpuscles, not considered leukemia by the authors. (3) Jewett,[5] age thirteen months, duration two and one-half months, lymphatic. (4) Jewett,[5] age seven months, chronic lymphatic. Jewett's cases must be classed as doubtful, since the leucocytoses were of such relatively slight degree (21,000 and 33,000 respectively), and but a single examination of the blood was made in each case. In infancy, even if such an increase as this is found to be made up of lymphocytes, a diagnosis of leukemia does not necessarily follow.

The present case, therefore, is probably younger than any hitherto reported, in which the blood has been thoroughly studied by modern methods.

The duration of this case cannot be stated with certainty as the onset was insidious. The large size of the spleen and the well-developed blood-picture at the time it was recognized, as well as its slow progress thereafter, make it altogether probable that it had existed for several weeks at least. Nothing abnormal was noticed on the tenth day when the case passed from the observation of the Lying-in Hospital, so that it will probably fall within the rather arbitrary limit of nine weeks set by Ebstein,[15] as the line between acute and chronic cases. It is, of course, possible that the disease may have begun in the earliest days of life or even before birth. Pollman [12] has reported a case recognized at the age of two weeks. He considered it congenital. Full blood-counts are not recorded, and Da Costa[16] is probably correct in classing it among cases in which the differential count of leucocytes "has been faultily made or entirely neglected." The same might be said of cases of Von Jakesch and Klebs [18] and of Sänger [17] of leukemia in the fetus.

This case ran its course almost without symptoms which would suggest the diagnosis of leukemia. A tendency to cry constantly is often noted in infants with leukemia, but is hardly suggestive of that disease. Hemorrhages into the skin, a frequent symptom of acute leukemia, were present, but only on the day of death. Had it not been the rule of the clinic to make a thorough physical examination of every patient and to examine the blood in every case presenting enlargement of the spleen or lymph nodes, the case would undoubtedly have been regarded as one of ordinary summer diarrhea.

The immediate cause of death in this case is a matter of much interest. It is unfortunate that the cause of the obstruction of the larynx or trachea which was the terminal event was not determined. At the time it was considered to be laryngeal diphtheria, but the fact that the voice was not entirely lost and that no other evidences of diphtheria were present would seem to make it improbable. The question is of especial interest in view of the frequency with which marked enlargement of the thymus is found in leukemia.[20] According to Pinkus [19] it is *always* enlarged. Ortner [21] describes a case in which death occurred in an attack of dyspnea due to enlarged thymus. He mentions as other causes of dyspneic attacks in leukemia: leukemic infiltration of the lung, pressure of enlarged lymph nodes or enlarged thyroid on the trachea, hemorrhages into the pleura or mediastinum, pleurisy, pressure of enlarged lymph nodes on the vagus or recurrent largyneal nerve, high position of the diaphragm, and lymphomatous infiltration of the diaphragm. Dyspnea may also be of purely cardiac origin. It is probable also that leukemic infiltration of

the mucous membrane of the bronchi of trachea might cause such symptoms, since Stieda [22] has recorded a case of laryngeal stenosis due to pseudo-leukemic infiltration and fatal after tracheotomy. It is more than possible that the same might occur in true leukemia.

Concerning the great reduction of platelets in the stained specimen, the following case is of interest:

A. J. D., age forty-nine, male. Patient of Dr. F. P. Denny. Lymphatic leukemia, duration about two months. White corpuscles 858,000, of which 83.4% were small mononuclear basophiles and 16.2% large basophiles. About one platelet could be seen in every three fields of the spread stained by Wright's method. This patient afterwards died at the Massachusetts General Hospital and the diagnosis was confirmed by autopsy. A count of the platelets made by Dr. J. H. Pratt, using the method devised by him,[23] showed their number to be 25,200, a very marked reduction.

Most writers have found the platelets increased[24] or hypertrophied [25] in leukemia. The cases quoted, however, would seem to indicate that this statement is based in general upon the myelogenous form of the disease. But Muir [26] in 1891, though he did not distinguish the two kinds of leukemia by name, and though he did not make differential counts, states, "When the uninucleated corpuscles alone are increased in number, the blood plates become very few, and in some cases may be almost absent before death. In the other type described they are generally increased in number."

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BOSTON CITY HOSPITAL CLINICAL MEETING.

NOVEMBER 10, 1904.

DR. F. B. LUND in the Chair; DR. L. R. G. CRANDON, Secretary.

THE following cases were presented:

SARCOMA OF THE TIBIA: AN UNUSUAL HISTORY: AMPUTATION: RECOVERY.

BY H. L. BURRELL, M.D.

A. M. G., a girl seventeen years of age, entered the hospital on July 20, 1904. Her left knee had been swollen, slightly painful for about a month. There was no history of her having injured the limb. On physical examination the upper third of the left tibia was generally thickened and tender on pressure. The flexion of the joint was limited to 60°.

At this time in the Out-Patient Department, a provisional diagnosis of osteomyelitis was made and an incision five inches in length was made on the inner side of the leg just below the knee. The bone was removed down to the marrow; no free pus was found, but there was considerable free bleeding. The iodoform wicks were kept in position a few days and were then removed. On the 16th of August, there was still bare bone to be felt at the bottom of the wound and the patient was relieved of the pain, but there was still some redness and tenderness at the outer side of the wound. Ether was given and some necrotic bone was curetted and chiselled away, care being taken that the joint was not opened. The wound was then packed with gauze.

This second operation was followed by relief from pain, although there was considerable shock. Relief continued in the bony tissue, and by the first of September the wound was fairly clean and was dressed daily. On Sept. 13, it was noticed that the upper part of the tumor had begun to assume the typical spheroidal appearance of a sarcoma. The granulations bleed easily, and there is a gaping cavity in the head of the tibia 2 x ¾ x 1 inches. A report from the pathologist of the bony tissue removed at the second operation establishes a diagnosis of endothelial sarcoma.

The diagnosis of sarcoma having been established, it was explained to the girl's parents that an amputation would be necessary. They removed the girl from the hospital, but on the third of October asked to have her readmitted. On Oct. 6, an amputation was done through the femur, just above the knee-joint, by a long anterior and a short posterior flap of skin, with circular division of the muscles. The vessels were tied with silk, the muscle sutured with catgut over the end of the bone; the skin flaps were sutured with silkworm-gut and horsehair sutures. A small rubber dam drain was inserted at the inner extremity of the stump and a ham splint was applied. The wound was dressed on the third day and was healing by first intention. On Oct. 18, the middle of the wound had separated somewhat and a granulating surface presented itself. This surface gradually covered in, and patient was up and about ward by Nov. 1. On Nov. 16, she was discharged, relieved.

Endothelial sarcomata are malignant, but it is hoped that by this amputation the patient's life may be saved. So far as is known there has been no metastases or recurrence following the amputation.

A CASE OF GLANDERS (FARCY).

BY JOHN L. AMES, M.D.

THE patient was a male, fifty-nine years old, a widower. Entered the hospital Oct. 28, 1904, under the diagnosis of pneumonia.

Family history: Negative. Previous history: Has never been sick before. Uses alcoholic beverages in moderation. Had gonorrhea two years ago, and was operated upon for stricture in April, 1904, at the Boston City Hospital.

Present history: Six days ago was taken suddenly ill and had a chill which lasted an hour, followed by sweating, and fever which has persisted. Vomited several times the first day, but none since. Pain at once was felt in the right side of the chest and was worse on taking a long breath. Has had a slight

cough with expectoration which two days ago was tinged with blood.

Physical examination: Patient well developed and nourished. General condition fair. Considerable prostration. Temperature 104. Pulse 115, regular, good volume and tension. Respiration 45, considerable dyspnea, slight cyanosis. Tongue coated and tremulous when protruded. Fingers tremulous when extended. Patient is restless and somewhat delirious.

Heart: negative. Lungs: Left negative; right lung shows dullness leading to flatness in front below fourth rib, and flatness in axilla and in back below angle of scapula to base. Over this area intense bronchial breathing with increased vocal and tactile fremitus. Bronchophony and whispered voice sounds markedly increased. Many firm and sub-crepitant râles.

Abdomen: negative. Reflexes: negative. Two days later, on Oct. 30, there developed redness, swelling and tenderness in the tip of the little finger of the left hand, and one small pustule appeared on the right hand and two on the neck. On the following day, the left foot became swollen, red and tender, and the big toe became of a deep purplish color.

More pustules appeared on the upper arms and rapidly developed on other parts of the body, being diffusely scattered over the surface of the arms, legs and face. The pustules varied in size and shape, from a split pea to a dime, and contained a sero-purulent fluid.

The lesions in the skin and phalanges multiplied during the next twenty-four hours; the patient grew rapidly weaker and died on the eleventh day of his illness and the fifth day after entrance to the hospital. The temperature ranged between 102° and 104° F., and the pulse finally rose to 150.

When this patient entered the hospital his occupation was stated as "a postman." It was afterwards ascertained that be was employed as driver on a mail wagon used for carrying the mail between the Post Office and the South Terminal, and that recently he had been serving as night watchman also in the stable where the horses were put up, and that part of his work was to feed the horses. About ten days after his death an inspection of the stable was made by a veterinarian, who reported the presence of a horse suffering with glanders.

Autopsy by Dr. Mallory.

OSTEITIS DEFORMANS (PAGET'S DISEASE).

BY GEORGE B. SHATTUCK, M.D.

This patient entered the hospital five weeks ago, referred from the out-patient department by Dr. Locke. The family history presents nothing of importance. He considers himself to have been well up to fifteen years ago, at which time the head of the right femur pained him in walking. At the same time had "tibial ulcer" of left leg which healed under treatment. Right tibia then "broke out in sixteen pustules" which under treatment became localized and healed in three months. A month after this he noticed right leg began to bow anteriorly and externally, and the right thigh showed similar signs three years later; no pain, except as noted above. Thinks the left leg commenced to bow and enlarge at about same time, but progressed much more slowly. Was much "run down" at this time and "heart was acutely dilated;" no symptoms of broken compensation. Had not noticed slow enlargement of calvarium until very lately. For past three years has has been troubled with dyspnea and faintness on exertion. He now has mitral insufficiency and sclerotic arteries. He denies venereal. Formerly used some alcohol.

The calvarium of the head is considerably enlarged; the bone is rather rough over the forehead; the temporal arteries are markedly tortuous and sclerotic, more noticeably so on the right; there is a shallow parietal depression on either side of the median line; no marked enlargement of mastoid processes; no apparent enlargement of the bones of the face nor of the zygomatic arch; there is the characteristic triangular outline of the face.

The chest is rather barrel shaped; there is considerable prominence in the right lower back, apparently due to bony enlargement of ninth rib; moderate enlargement of the clavicles. There is no noticeably bony enlargement or deformity of the arms; the legs are markedly bow-legged; both femurs are thickened and show external and anterior bowing. Shafts of the tibiæ are much enlarged and roughened, with anterior and external bowing. The mode of locomotion is characteristic.

PROBABLE SYPHILIS OF ELBOW.

BY J. C. HUBBARD, M.D.

H. F. B., an adult male, came to the Out-Patient Department early in October. In May, 1904, he fell, striking his left elbow. The injury was considered slight and his doctor immobilized the elbow for a few days. When the splint was removed the elbow was found to be stiff. Pain soon developed in the joint. Since then the limitation of motion and the pain have steadily increased till at present every night, large doses of morphine are necessary. I think the patient has taken as much as a grain and a half each night. He has been told the dangers of the morphine habit and has tried to keep the doses small, but without success. He has since May been to many doctors and had various forms of treatment without any benefit. The limitation of motion and the pain have steadily increased.

On examination he presented an elbow which had but very little flexion or extension from the position of right angle flexion in which the joint was held. Over the internal condyle there was a definite thickening which was tender to touch. In other respects the man appeared perfectly healthy. The x-ray picture showed the thickening of the condyle to be due to a thickening of the periosteum. There was an irregular thickening of the periosteum over the lower half of the humerus and possibly of a very small portion of the bones of the forearm just at the elbow. There seemed to be nothing characteristic in this periostitis.

On more careful questioning of the patient, it was discovered that he had had syphilis in his youth for which he had taken for two years an apparently thorough course of treatment and had stopped his medicines only when the doctor told him that he was cured.

Having learned this history the man was given ten-grain doses of potassic iodine. After a very few doses, in fact the patient says after the second, the pain began to leave and the morphia was dropped. The motion at the elbow became more free and in a comparatively short time, a week or ten days, the arm was practically as good as ever.

The potassic iodide was slowly increased. At present he has a perfectly free elbow joint which gives no pain. The potassic iodide must have been of benefit from its own intrinsic virtues and not from any mental effect on the patient for he was opposed to trying the medicine when he learned its nature, as he was sure his present trouble could have no connection with the previous syphilis as his treatment at that time had been so thorough.

I show this case because of the interest connected with the almost startling recovery and because of the suggestion it gives as to treatment

in doubtful cases with a specific history. The fact of yielding to treatment with potassic iodide, however, does not make it absolutely positive that the trouble was of syphilitic origin.

TWO CASES OF PROSTATIC HYPERTROPHY TREATED BY TOTAL REMOVAL OF THE GLAND BY PERINEAL PROSTATECTOMY.

BY FRANCIS S. WATSON, M.D.

THESE two patients upon whom the operation of total prostatectomy has been performed, present some points of interest, the chief of which, to me personally, was the opportunity which they afforded for me to once more contrast two different ways of effecting the removal of the gland, one of them being that with which I have been familiar and have practiced from time to time since 1888, the other that having the technic employed by Dr. Young of Baltimore.

The results are excellent in both cases. The differences in the manner of operating are considerable and have confirmed me in favor of that one which I have used for so long a time as compared with the other to which I have just referred.

The essential differences between the two are these: The one is done by a careful dissection conducted under the eye, more or less, and occupies from twenty to forty minutes, according to the conditions presented in individual cases. The other, which is that which I prefer, is an operation by enucleation, with the finger, done wholly by the sense of touch alone, which in this particular condition is much more valuable to me personally than is that of sight in doing the other method. It occupies from four to fifteen minutes according to circumstances. The average time will be about eight minutes for the entire operation in the general run of cases.

The dissecting operation aims at and is claimed by Dr. Young to secure the preservation intact of the ejaculatory ducts and the prostatic urethra. The operation by enucleation with the finger tip disregards injury to both of these structures.

Excellent results are obtained by both methods of operating. The mortality and immediate results are not better in the one than in the other, if we may judge by the reports of cases published and by our own experiences. The remote results of the finger enucleation operations, so far as they are known, are excellent. Those of the dissecting ones are less available, for the latter have not been done in sufficient numbers until recently to allow of a comparison.

The mortality of the perineal operations, however done, not of course meaning, by that statement, to imply whether skillfully or unskillfully done, but by whatever of the ways they are skillfully done, have gradually succeeded in reaching a point of low mortality, from 3% at the best to 5% as an average, that will cause them, if done early enough, and before the catheter has infected the bladder to a serious degree, and if the kidneys have a proper degree of functional capability, before long, I believe, to be used as a substitute for the time-honored treatment of the malady by the catheter, whenever the latter fails to be entirely successful; and as soon as this is the case, and perhaps, though it sounds rather a bold statement, should wholly displace the catheter as a means of treatment. This statement sounds less startling to those of us who have been personally advocating the employment of the radical operations for the past fifteen or twenty years, than to the medical and surgical practitioners who for the greater part of this time turned a deaf ear to the advocacy of the small number of surgeons who have tried to demonstrate the value and benefits to be derived from the radical operative treatment, and the inherent dangers that are involved in the seemingly much more innocent procedure of the use of the catheter; for we have watched the evolution of the operative treatment, and have at last seen it take root with the most astonishing strength, find it being loudly proclaimed by a host of operators who seem to have all in a moment become aware of its existence for the first time, and are likely to witness the too far swing of the pendulum whereby it will be brought into disrepute, perhaps, by being indiscriminately put into practice by any one and every one, in all manner of cases, some of which will not be appropriate for its application.

To return to the patients I show here to-night.

The one upon whom the operation by the technic employed by Dr. Young was done, is a negro of fifty-five years of age. He was in fairly good general condition when operated upon, had had the symptoms of the disease for about two years, and for six months they had been severe, so far as the local conditions of the bladder and pain and distress were concerned. The functional capability of the kidneys was sufficiently good to sustain the strain of the operation. There was a residual of about six ounces, and a well-marked cystitis, frequent and distressing desire to urinate.

In this operation the gland is exposed by one or the other of the time-honored incisions — the inverted V or inverted Y cuts — in the perineum, is brought toward the surface of the perineum by means of a two-bladed retractor passed into the bladder through an opening made in the membranous urethra. The outer capsule of the gland is slit through by two incisions, one on either side the median line of the gland and extending over nearly the whole length of the posterior aspect. Each lobe is then enucleated in turn, by means of a blunt dissector which separates it from the outer sheath, and removed.

The operation required forty minutes for its performance, was attended by free hemorrhage at the time and a secondary one of severe character late the same afternoon.

Convalescence was slow, voluntary control of urination was regained in the fifth week. Cystitis is now — seventh week — almost cured. No residual urine. There are no subjective symptoms, no frequency, the urine is voided painlessly and voluntarily.

The operation done in the second case is that proposed originally by Gouley of New York, many years ago, 1873, and which has been practiced by me since 1888, though not in a very large number of cases, and is identical with the method used by Goodfellow of San Francisco and by Bryson of St. Louis, since 1890 and 1895, and is the same as the perineal part of Alexander's operation proposed in 1895, the other part of

which is a suprapubic cystotomy for the purpose of steadying the gland from within the bladder during the manipulations upon it from below.

The urethra is opened just anterior to the apex of the prostate, by an ordinary median perineal external urethrotomy incision. Through this opening the forefinger is passed into the prostatic urethra, and with its tip the mucous membrane along the sides of the latter, each in turn, is bored or scratched through by the finger nail; personally I push the tip of the finger underneath the overhanging ledge formed by the lateral lobe of the gland projecting into the prostatic urethra on each side, and pry upward upon the under surface of the ledge. When this is done a longitudinal rent is made through the lateral aspect of the prostatic urethra down to the surface of the gland, through which opening the lateral lobe on one side and subsequently through a corresponding opening made in the other side, its fellow, are successively enucleated by the finger tip which separates them from their outer fibrous capsule.

The lobes are each in turn withdrawn through the urethral opening already described, unless they be too large to be withdrawn in this way without incurring the risk of tearing the structures too much, especially the rectum.

The operation in this case occupied eight minutes altogether. The enucleation alone took me three minutes. There was no hemorrhage at the time or subsequently. The patient was sitting up in bed and reading a newspaper when I made my visit on the second day.

Convalescence was slow with respect to the local, but uninterrupted so far as the general conditions were concerned. He has not yet — five weeks after the operation — wholly regained control of micturition, there being a little leaking, when he stands up and moves about, through a minute opening left unhealed in the perineum. One week later the opening completely closed and full control of urination and restoration of it to the normal condition took place. A small amount of pus and mucus still remain in the urine, but are daily becoming less. There is no residual urine. Urination is voluntary, painless. There is no frequency and no subjective symptoms of any sort.

The time element in these operations is an important one. This is one of the particular advantages secured by the operation described last, as compared with the more laborious and prolonged perineal dissecting methods of which there are a considerable number closely resembling each other, and which aim at preserving more or less, or wholly, intact, the prostatic urethra, which may in some cases be done, but cannot be guaranteed in all of them, no matter what skill the operator may have or what technic is employed. That it can be done in some cases, however, is assuredly true.

I do not share the opinion of those who are so urgent as to the importance of saving the ejaculatory ducts. I will not dispute those who claim to be *able* to do it, but confine myself to stating that I, personally, cannot succeed in excluding them from injury or from field of a perineal operation, no matter what method of technic I may employ. No one, even granting that success has attended the attempt to preserve the ducts during the operation, can be assured that their integrity will not be injured or destroyed by their being involved in the subsequent cicatrization.

It has not yet been shown that harm results from injury or destruction of the prostatic urethra during the operation. On these various accounts the balance, to my mind, tips distinctly in favor of the perineal enucleation operation of Gouley rather than toward the dissecting procedures of which that of Young is one example. I must, however, admit that I labor under the influence which is so common a one in biasing the human judgment, namely, that of having to wean myself from a favorite long practised method with which I have been familiar for years, and of having to become skilled in the technical maneuvers of a more or less new one.

These two cases are the thirty-ninth and fortieth total removals of the prostate and the eighteenth by the perineal route that I have thus far done with a mortality of 10%.

ACUTE PANCREATITIS.

BY F. B. LUND, M.D.

Operation twenty-one hours after beginning of attack.

R. W., aged fifty-eight years, born in Germany, was seen Oct. 3, 1904. History showed that she had always been well except for two attacks of epigastric pain occurring in the last three years, neither of which had been as severe as the present attack. She was admitted to the hospital at 10 A.M., her present illness having begun at one o'clock of the day before, with severe epigastric pain and vomiting. She was attacked while walking home from church. On reaching home, the pain and vomiting continued, she having vomited every half hour when she entered the hospital. The pain had not diminished from the beginning of the attack, but remained about the same. On entrance, she showed marked prostration, brows sweating, eyes sunken, facies bad. Temperature 104, pulse 120 and weak. Tongue showed a dry, brown coat. She constantly vomited a brownish fluid. Marked tenderness and muscular spasm were present in the epigastrium and right upper quadrant of the abdomen. There was an obscure feeling of tumor in the epigastrium. The muscular spasm extended all over the abdomen, but was less marked than in the epigastrium. White count showed 22,000 leucocytes. There was a slight jaundice. The writer's diagnosis was probable perforation of the gall bladder, or of an ulcer in the pyloric portion of the stomach. His first assistant, Dr. H. B. Smith, made a diagnosis of pancreatitis.

The patient was etherized, and under ether the spasm disappeared, and a tumor corresponding to the swollen head of the pancreas and extending to the left across the epigastrium and into the left hypochondrium could be felt. An incision was made splitting the fibers of the upper portion of the right rectus and the gall bladder, distended, but having on its outer surface a healthy peritoneum, protruded through the incision to a distance of about two inches outside the abdominal wall. It was found to contain two large gallstones. Retracting the incision towards the left there was found to be no free blood or fluid in the perineal cavity, but on cutting through the gastro-hepatic omentum, the

head of the pancreas was found to be dark red, apparently covered with a thin layer of clot, and presenting on its anterior surface two or three areas of fat necrosis, one of which was ¾ in. by 1 in. in diameter. The front of the head and body of the pancreas were scored vertically and transversely in order to relieve tension and favor the subsidance of the inflammatory tissue before it went on to gangrene. A soft spot was encountered in the lower part of the pancreas, containing grumous fluid. This was evacuated. Strips of sterile gauze were packed down firmly in the front of the pancreas to absorb exudate and favor delimitation of the process to the affected area. The gall bladder was opened and after the removal of the two stones, was drained. The importance of drainage of the gall bladder, a treatment in both acute and chronic pancreatitis, is well known. The gall bladder was left projecting through the incision, being secured in place by a single stitch to the skin and drained by a tube which was tied into it. About six hours after the operation, the patient began to vomit again, but the vomiting diminished and ceased twenty-four hours after the operation. The pulse steadily improved, the slight jaundice cleared up, and the patient's general condition steadily improved for five days. The gauze was removed on the fourth day. Then the temperature began to rise, the epigastric tenderness to return. There was a free discharge of bile from the gall bladder, and a slight discharge of pancreatic fluid from the fistula left by removal of the gauze, with some irritation of the abdominal wall.

Sixteen days after the operation the patient was again etherized and the epigastric fistula dilated and a moderate amount of pus and necrotic fat washed out from a cavity in front of the pancreas. After this the temperature fell to normal and the patient's condition steadily improved, the irritation of the abdominal wall greatly diminished.

The advantage of early operation in limiting the amount of sloughing and providing further drainage for necrotic material, is well demonstrated by this case, as is also the advantage of early exploratory incision in epigastric peritonitis.

GONORRHEAL ARTHRITIS OF THE KNEE.

BY F. B. LUND, M.D.

A. T., married, twenty-five years of age, an Italian, was seen by the writer in consultation, on Oct. 28, 1904. For four weeks she had been confined to bed with acute pain and swelling of the right knee, attended by flexion. The attack had been preceded by an attack of acute vaginitis, urethritis and cystitis.

Examination showed a young woman, well developed and nourished, lying in bed with the knee flexed at about 30°, very tender; hot palpation demonstrated the presence of fluid in the joint and considerable periarticular edema. Temperature 102. On account of the severity of the symptoms and long duration of the attack, it was felt that palliative treatment would hardly apply to the case, therefore she was operated upon the next day at the City Hospital.

Under ether, an incision was made into the joint on either side of the patella, allowing the escape of a considerable amount of sero-purulent fluid with numerous flakes of fibrin. The synovial membrane was much thickened, deeply injected, and velvety in appearance and feel. The articular cartilages were smooth and normal in appearance. The joint was washed out with sterile salt solution. The knee was forcibly straightened, the joint drained by a strip of rubber tissue passed in through each wound and the remainder of the wounds sewn up. The leg was dressed on a ham splint. Immediate relief of pain followed the operation. The rubber drains were removed in twenty-four hours. Five days after the operation a plaster of Paris bandage was applied to the knee. The temperature gradually came down to normal, reaching that point in ten days. Two weeks after the operation the patient left the hospital on crutches. There was no heat or tenderness about the knee, and the swelling had almost entirely disappeared. The incisions were healed.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 1, p. 17.)

PERITONEAL SALINE INFUSIONS IN ABDOMINAL OPERATIONS.

J. G. CLARK and C. C. Norris [11] have presented an interesting and valuable paper on this subject. Their conclusions are as follows:

(1) The use of salt solution does not increase, but unquestionably minimizes the dangers of pyogenic infection.

(2) In addition to the reduction of mortality the convalescence of the patient is rendered infinitely more comfortable and satisfactory through the reduction of thirst, the increase in the urinary excretion and the minimizing of vesical irritation.

RETROPERITONEAL SARCOMA.

Steele,[12] in March, 1900, published a series of conclusions based upon the study of 61 cases of sarcoma originating in the retroperitoneal space, and since that time has observed 3 new cases, and has collected a supplementary series of 32 cases, making a grand total of 96 cases. He summarizes his paper as follows:

Frequency. — Sarcoma of the retroperitoneal space is not very uncommon. In the past few years it has become recognized that the development of such tumors has a definite symptom-complex, and more reference is being made to the condition in current literature, with a relatively larger number of reports of cases.

Etiology. — The condition is more frequent in the first, fourth, fifth and sixth decades; 53% occurred in the interval from the thirtieth to the sixtieth years.

Sex is not a predisposing cause. In 90 cases there were 44 males and 46 females. In 4 cases there seemed to be a direct relation between an abdominal injury and the development of the tumor.

In one case the tumor grew from the wall of a retroperitoneal abscess.

Course. — The development of the tumor is very quick. The average interval from the time the growth was first detected to operation or death in fifty-eight cases was eight and a half months.

Position and morbid anatomy. — The most common point of origin of these tumors is in the lumbar region (30 cases, or 32%), and the right side is oftenest affected. The next most frequent

point of origin is the center of the retroperitoneal space (19 cases, or 20%). Next comes the iliac region (17 cases, or 18%). In 6 cases the tumor grew in the pelvis, and in 4 cases it originated in the upper central region above the level of the umbilicus. The tumor was lateral in the majority of cases (56, or 60%), and two thirds of the lateral tumors were upon the right side. The tumor is almost always single. It is usually lobulated and encapsulated, and is hard and firm in the earlier stages, but is very prone to degeneration. The degenerative process is oftenest hemorrhagic in character, but may be puriform or myxomatous. In a third of the cases degeneration progressed to such a degree that the growth assumed a cystic character.

Metastasis occurred in one third of the cases. The secondary growths are most often found in the liver and lungs. In many of the cases the new growth involves the intestines, and in 5 cases a cystic tumor ruptured into the gastro-intestinal tract or the peritoneal cavity.

Symptomatology and diagnosis. — Emphasis must be placed upon the fact that the symptoms and signs vary so greatly in accordance with the position of the tumor that a very comprehensive classification cannot be made. The signs most characteristic of sarcoma of the retroperitoneal space may be stated as follows:

The earliest manifestation of the presence of a hard or elastic nodular tumor usually quite immovable, growing deep in the abdominal cavity and giving rise to rather indefinite digestive disturbances. If the mass is placed so as to interfere with the important structures of the abdomen or retroperitoneal space, there may be characteristic pressure symptoms, such as pain and edema in the legs or genitalia, or obstruction of the urethra or the large or small bowel. As the tumor enlarges, the symptoms of interference with the abdominal viscera are aggravated, and there may be constipation, sometimes amounting to intestinal obstruction, difficult micturition, violent vomiting, or signs of perforation of the bladder, stomach or bowel.

The point of most value in the physical diagnosis is the relation of the colon and intestines to central and lateral growths, and the relation of the stomach to upper central tumors. The determination of the position of the stomach or the colon in most cases should decide whether or not the tumor is retroperitoneal. When this has been done, the diagnosis is narrowed to tumors of the kidney, adrenals, accessory adrenals, remnants of the Wolffian ducts, tumors of the pancreas, cysts of the pancreas, aneurysms and solid retroperitoneal tumors in the restricted use of the term.

Perhaps the only sign that is at all characteristic of retroperitoneal sarcoma, and that can be used in distinguishing between sarcomata and other solid tumors of the retroperitoneal space, is the tendency of retroperitoneal sarcomata to degenerate early in their course. When a tumor that is evidently retroperitoneal and that was, at first, hard and nodular, rapidly softens and shows spots of fluctuation, the evidence is strongly in favor of its being a sarcoma springing from the retroperitoneal glands or connective tissue.

An exploratory incision is the only certain means of determining the origin of solid malignant tumors of the retroperitoneal space, and surgical interference offers the only hope of prolonging the patient's life.

The prognosis of the condition is distinctly unfavorable. The chief danger lies in the insidious development and lack of characteristic signs and symptoms in the early stages of the growth of the tumor. An early diagnosis is imperative, if any benefit is to be derived from surgical interference. It is important, therefore, to recognize that such tumors are not excessively rare and that their development presents a somewhat obscure but still characteristic symptom-complex. Hence it is important to include retroperitoneal sarcoma in the list of possibilities in the examination of cases with indefinite disturbance of digestion and loss of weight, especially if there are signs of pressure upon any of the structures included in the retroperitoneal space.

SOME OBSERVATIONS ON THE EFFECTS PRODUCED ON THE SKIN BY THE DISCHARGE OF SMALL-ARMS LOADED WITH SMOKELESS POWDER.

Johnson,[13] in a paper read before the New York Surgical Society, Jan. 27, 1904, gave the results of various experiments to determine the effects on the skin by the discharge of pistols loaded with smokeless powder. He draws the following conclusions:

(1) Powder marks upon the skin and clothing produced by smokeless powder are much less distinct and definite than those caused by black powder.

(2) With the weapons used in these experiments, such marks ceased to be produced when the distance exceeds one foot and the shot is fired at the naked skin.

(3) At a distance of three inches or less powder marks may be present, but they will always be faint, and may in many instances be wiped away from the skin with a wet or dry cloth.

(4) If the shot be fired at a part of the body covered with clothing, no powder marks at all will be found on the skin. The clothing will never be scorched, no matter how near the weapon is held.

If the clothing be wool, no powder mark is likely to be detected upon it even at the closest range, unless under the microscope. If the clothing be of linen, a faint mark may be found upon it if the weapon were held at a distance of three or four inches or less. If the distance much exceeded this no mark would be produced.

The evidence furnished by a microscopic examination of the pieces of linen appears to the author to be interesting. It is evident, he feels, that by this means it might in certain instances be possible to state with some positiveness that a certain kind of ammunition had or

had not been used. Such a conclusion might be of the greatest importance from a medico-legal standpoint.

THE EFFECTS OF AIR EMBOLISM.

The attention of surgeons is again called to the cause of death from air embolism by the reported investigation of Wolff,[14] who concludes that the principal agent in producing a fatal result is the obstruction to the blood circulation by extensive blocking of the capillaries by the air emboli. The presence of air in the left side of the heart was not demonstrated, at least in any essential amount. As to the abnormal sounds found in the heart after air had been introduced into the veins, the different explanation is offered from that usually made. In addition to his experimental work the writer has extensively reviewed the literature of air embolism.

TREATMENT OF ARTERIO-VENOUS ANEURISM.

Körte, at the last German Surgical Congress in Berlin, reported a case of this lesion caused by a knife stab in the popliteal space. The artery and vein were found united for a space of 6 mm. They were dissected apart and the resulting wound in each was closed by a very fine linen suture. The wound was dressed with compression. Complete recovery followed with pulsation in the tibial artery.

At the same time another method of treatment was presented by Franz from the v. Bergmann clinic. In this case the vessels were ligated. In animal experimentation where he sutured an artery to a vein to produce artificially this condition of venous aneurism, immediate venous pulsation followed. The arterial stream soon flowed in the vein, toward both the heart and the capillary ends of the vessel. He recommended as satisfactory treatment ligation of the vein, both above and below the fistulous opening in its wall.

THE SURGICAL TREATMENT AND HISTOLOGY OF RONTGEN RAY. ULCERS.

A communication from G. Baermann and P. Linser[15] presents the results of an investigation of these lesions. The data were collected from eight cases of severe extensive ulceration, caused by x-ray exposure. These failed to heal by the Thiersch method of skin grafting, but did heal in a short time when covered by transplantation of skin flaps with pedicles. The histological examinations seemed to show the vessels in the injured tissues were destroyed. The larger ones in the deeper layers showed marked diminution in the lumen and also marked endarterial growth. The conclusion was that all the blood vessels were injured or destroyed by the x-ray, and this was the cause of the difficulty in healing of these lesions and not a deficiency in the process of epithelial reproduction. In fact, the proliferation of epithelium is abundant, but the new formed cells cannot become fixed to the necrotic base of the ulcer. In cases when skin flap is transplanted, the new vessels arise from the blood vessels in the flap. Further experimentation seemed to show a chemical biological injury to the blood which did not affect the lymph. Also that the nitrogen excretion in the urine is increased. The knowledge of this fact of the power of skin flap transplantation on these obstinate ulcers, should the work of Dr. Baermann and Linser be corroborated by future clinical experience, will be a valuable contribution.

RESECTION OF THE ANKLE.

J. Bogdanik[16] calls attention anew to his method of incision for resection of the astragalus and os calcis which he already, in 1892, published in the Zentralblatt für Chirurgie. This method of incision had the advantage that no large vessels, tendons or nerves were injured. Bogdanik originally used it only in cases of affections of the astragalus and os calces. But since then he has thought this incision extended considerably the field of operation. When one, after sawing through the calcaneum, continues the incision along both borders of the sole of the foot and divided the capsule between the astragalus and os calces, access to the small bones of the tarsus is easy, and the operator can curette out the foci of disease, remove diseased bones and the tuberculous granulations between them with the least danger of injury to the vessels, tendons or nerves. When the incision is prolonged upwards along both sides of the tendon Achilles, there is a good approach to the ankle joint.

NASAL PLASTIC OPERATIONS.

C. Beck[17] reports with illustrations a method of covering nasal defects with a flap, transplanted from the lower lip and chin. A triangular flap is cut from the left side of the lower lip and chin and rotated 180°, so that the lower angle, as it was originally situated on the chin, is placed in the region of the base of the nose. The pedicle is divided on the seventh and twelfth day following the operation, at two separate "sittings." The cosmetic result is reported good. The edge of the lower lip formed the border of the left nostril. This flap has an epithelial surface for the inside of the nose. The resulting defect in the mental region healed satisfactorily. This method avoids a frontal scar, so conspicuous after the usual method of frontal flap transplantation and in case of male patients the resulting disfigurement of the chin might be covered by the beard to a certain extent.

THE TECHNIQUE OF THIERSCH GRAFTING.

C. Lauerstein[18] calls attention to the common practice of curetting granulating surfaces of ulcerations previous to the placing of the skin grafts by the Thiersch method. That the original Thiersch method consisted of cutting or slicing off the surface of the granulating area before grafting it. That the entire removal of the granulation by vigorous curetting leaves a surface of rather dense connective tissue or fascia which is poorly supplied with blood vessels. He advocates for this reason the giving up of the

curettage of the granulation tissue surface as a preparatory step for the grafting, and, in place of it wipes or rubs the surface with gauze tampons till it bleeds slightly. The grafts are now placed and the part dressed by the "dry method." He expects healing under one dressing in eight days. The other essentials in the operation which he emphasizes are: Complete asepsis, application of the dressing so as not to displace the grafts, to prevent bleeding or oozing from elevating the graft from the surface by collecting under it.

THE TREATMENT FOR SKIN GRAFTING.

F. Brüning [19] reports satisfactory clinical results upon the suggestions of Bernhard and Wagner,[20] regarding the "open" method of after-treatment of Thiersch skin grafting.

Brüning states that in Freiburg the custom has been to begin the "open air" exposure of the grafts at once after the operation. The favorable results followed equally with grafting, on fresh wound surfaces or on granulating wounds. The patient is left quietly on the operation table several hours with the surface exposed to the air, till the first adhesion of the grafts is firm. In bed the clothing is so arranged as not to come in contact with the grafted surface. This is most easily done in cases where a general anesthesia has not been used at the time of operation. By this method the serous exudation which occurs during the first hours following operation can be carefully removed by gauze pads or pressed out from under the grafts. After six or eight hours the graft is so firmly adherent that it is no longer easily displaced. Whether the surface is protected by a dressing during the night depends on the character of the patient and the position of the grafted surface. When these conditions are favorable the surface is exposed to the air continuously day and night. When such that the grafts are endangered, the wound is dressed at night. By this method surfaces heal in eight days. The contrast between this method and the usual ones is striking. There is no maceration of the grafts. When the bandage is put on several hours after the operation, the grafts have dried in place and are not easily moved.[21]

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[19] Münchener Med. Wochenschr., 1904, No. 1.
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(*To be continued.*)

A New Hospital. — According to the *Medical News* the United States Steel Corporation has decided to erect a hospital at Donora for the care of the injured mill workers. It will be maintained merely for emergency work. So soon as the patients are able they will be removed to their homes or to some hospital in Pittsburg.

Reports of Societies.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

(Concluded from No. 1, p. 20.)

THE EMPLOYMENT OF CELLULOID PLATES FOR COVERING OPENINGS IN THE SKULL IN OPERATIONS FOR EPILEPSY, BRAIN TUMOR, ETC.

Dr. William P. Nicolson of Atlanta, Ga., read a paper with this title, in which he summarized as follows: (1) Celluloid is safe and does not add any extra risk to the operation. (2) It not only removes the pressure and irritation which the surgeon is endeavoring to combat, but by its resistance prevents a recurrence from the subsequent consolidation of the coverings in a false position due to atmospheric pressure. (3) It protects the patient from external influences, and not only makes him feel safer, but he is actually safer. (4) It enables surgeons to be much more untrammeled in the amount of bone that they can remove. (5) It prevents deformity, which especially, when beyond the hair line, is necessarily great in large bone removals.

Dr. Edward A. Balloch of Washington, D. C., read a paper entitled

TRAUMATIC SYNOVITIS OF THE KNEE JOINT.

The author cited illustrative cases showing the advantages of early operative intervention, after which he drew the following conclusions: (1) In most if not all cases of traumatic arthritis of the knee, there is an injury to some of the structures of the joint. (2) Conservative measures should not be persisted in too long. Three weeks was proposed as a fair length of time for a trial of these measures. If no improvement is manifest at the end of that time, the propriety of operative intervention should be considered. (3) Arthrotomy, properly performed, is not an essentially dangerous procedure, and may do great good. (4) Early operative intervention will give a greater proportion of useful joints in a shorter space of time than any other method.

CASES IN WHICH EARLY DIAGNOSIS OF CANCER OF THE BODY OF THE UTERUS WAS MADE.

Dr. Rufus B. Hall of Cincinnati, Ohio, said that of the many cases of cancer of the body of the uterus coming under his observation, only two cases which he reported in his paper were seen early enough to make a diagnosis while the disease was limited to a very small area. Adenocarcinoma was found to be the variety of the disease in each case. He believed the disease can be diagnosed in its incipiency, if surgeons systematically curette every suspicious case and make repeated microscopic examinations of the scrapings removed from the uterus until they confirm or disprove the presence of malignant disease.

Dr. J. Whitridge Williams of Baltimore, Md., read a paper entitled

A CONTRIBUTION TO THE ORIGIN OF ADENOMYOMA OF THE UTERUS.

After calling attention to the anatomical appearance of adenomyomata of the uterus, and the various theories which have been advanced according to the origin of the epithelial structures contained in them, he described a uterus removed at autopsy from a woman who died just after delivery as the result of hemorrhage from placenta previa. At the time of its removal the uterus apparently presented the charac-

teristic appearance of the organ immediately following delivery, except that the area of placental attachment covered two thirds of its interior, instead of being more circumscribed and limited to the anterior or posterior wall, thus indicating in all probability that interference with its blood supply had led to a much more extensive implantation of the placenta than usual.

On making a sagittal section through the uterus after hardening, numerous irregularly shaped, more or less oval areas, of a dull, white appearance, and varying from a millimeter in diameter to structures 5 by 10 mm. in their various dimensions, could be seen throughout the entire thickness of the uterine walls, which measured 3 cm. in their thickest parts. These areas were most abundant immediately beneath the endometrium, but could be traced outward through the entire thickness of the uterine wall to its peritoneal covering. Upon microscopic examination they were found to consist of typical decidual tissue, which was made up of the characteristic decidual cells and glandular spaces lined by cuboidal epithelium.

The speaker stated that so far as he could ascertain this is the first case in which such a distribution of decidual tissue has been observed, and then proceeds to discuss the importance of such an observation in contributing towards determining the derivation of the epithelial structures contained in adenomyomata. He referred briefly to the literature upon the histogenesis of adenomyomata, and pointed out that while the vast majority of such growths are clearly derived from Muellerian tissue, conclusive evidence against the Wolffian body origin of certain cases has not yet been and probably never can be adduced.

DEVELOPMENT OF FIBROIDS OF THE UTERUS AFTER ABLATION OF THE APPENDAGES.

DR. J. WESLEY BOVEE of Washington, D. C., stated that the large number of published cases of fibroid tumors that have undergone malignant degeneration, or that have broken down, become infected, or undergo other changes in structure detrimental to the lives of their unfortunate possessors have swept away the old ideas as to their benignancy, and that pathologists are now searching for a distinct border line between benign and malignant soft uterine myomata. Recurrent myomata, while not so dangerous as cancer, must be considered malignant. Between these and sarcomata there is not always a distinct difference. Five cases are cited, and of these, two were operated on for non-infectious disease, two were victims of infection, and in one a condition requiring the removal of the appendages was not known.

In considering the changes in the uterus after ablation of the appendages, the author quoted the experimental work on lower animals of Hunter Robb and others, and said that from these experiments and investigations one can find but one theory upon which to base a cause for the development of fibroids after double salpingo-oophorectomy. This is the endarteritis obliterans noted by Benckeiser.

THE EFFECT OF SUSPENSIO-UTERI ON PREGNANCY AND LABOR.

DR. JOSEPH TABER JOHNSON of Washington, D. C., contended that very few, if any, such injurious effects need be feared as have been frequently charged against the operation of suspensio-uteri. That it sometimes fails to cure is true, but that is not the charge. In over one hundred suspensions done by himself, he only knows of two pregnancies. These are both normal. In one case the labor was so rapid that the child was born before the doctor's arrival, and he knows from recent examinations that there has been no return of the retroversion. The other case he delivered in November last, after a five-hour normal labor, without chloroform or forceps. The author mentioned the number of suspension operations done by other surgeons.

TYPHOID FEVER AND APPENDICITIS.

DR. JOHN C. OLIVER of Cincinnati, Ohio, in a paper on this subject draws the following conclusions: (1) That typhoid ulcers may appear in the glandular structures of the appendix and give rise to a typhoid appendicitis. (2) That the infiltration of the ileum and cecum in typhoid fever may be so great as to give rise to a distinct tumor mass in the right iliac fossa. (3) That the Widal test is of but little, if any, value in the early diagnosis of the disease present. (4) That the leucocyte count proved in his series of cases of value in distinguishing between the two diseases. (5) That an exploratory laparotomy in typhoid fever is not devoid of danger. (6) That abdominal incision is imperative when it becomes necessary to establish the differential diagnosis between a typhoid perforation and fulminant appendicitis. (7) That in the absence of perforation, cases of typhoid appendicitis should not be operated upon.

DR. P. F. CHAMBERS of New York City read a paper in which he pointed out the problems presented to the gynecologist twenty-five years ago and to-day.

UNVEILING EXERCISES.

The monument erected by the Association to its founder, the late Dr. W. E. B. Davis, was unveiled in Capitol Park, with fitting ceremonies, Wednesday, Dec. 14, at eleven o'clock, in the presence of about five thousand people, including the members of the Association. After an invocation by Rev. Dr. L. S. Handley, Dr. Charles M. Rosser, of Dallas, Texas, was introduced and delivered the address of presentation of the statue. The statue was unveiled by Elizabeth and Margaret Davis, the little daughters of the beloved physician. Dr. R. M. Cunningham, Acting Governor of the state of Alabama, accepted the statue in behalf of the state in an eloquent address in which he paid a glowing tribute to this great physician. The statue, in behalf of the city of Birmingham, was accepted by Hon. John C. Forney, the representative of Mayor Drennan, who was unavoidably absent.

THE MANAGEMENT OF ACUTE GENERAL PERITONITIS.

DR. J. GARLAND SHERRILL of Louisville considered two forms of infection, first, acute septic peritonitis; second, general suppurative peritonitis. The various methods of medical treatment were considered, and the position taken that these cases were surgical, except where operation is refused and the patient's condition will not permit of surgical interference.

In considering the surgical treatment, much stress was placed upon early operation for the prevention of general peritonitis while the process is yet localized. The outcome of a given case will depend upon the following factors: (1) The virulence of the infection; (2) the quantity of the infecting medium; (3) the resistance of the patient; (4) the activity of the organs of elimination; (5) the time at which the patient comes to operation; (6) the rapidity and thoroughness of the surgical procedure.

It seems to the writer that the special technique of the operation is of less importance than the dexterity of the surgeon and the care with which he does his work. The author finds that by flushing he can best

free the peritoneum of infectious material, and usually drains. The patient should have the usual treatment given all abdominal cases.

SOME FURTHER ADVANCES IN RENAL SURGERY.

Dr. John B. Murphy of Chicago makes a forcible plea for more conservative surgical work on the kidneys and ureters in the future, saying that surgeons must consider the importance of preserving any portion of a kidney that is still in a condition to functionate, on account of the enormous mortality associated with the removal of this organ. The mortality in the past, following the removal of a kidney that was secreting practically the normal amount of urine, varied from 20 to 35%. He reported six cases of operations upon the kidneys. In all of them the enlargement of the pelvis of the kidney was almost equivalent to, and in many instances larger than, the kidney itself. In cases of great dilatation of the pelvis of the kidney, formerly it was his custom to remove the kidney until he realized that it was practically a normally secreting organ, and that the dilatation of the pelvis is due to ureteral obstruction, and that there is no good reason for taking out a kidney when the sac is removed, regardless of the position of attachment of the ureter to the sac, as this varies in every case. He believes in connection with surgery of the kidney, that surgeons are approaching a time when they will examine the kidney carefully, cautiously, and then decide, as in certain lesions of the stomach, that this or that portion shall be removed and the remaining part husbanded.

VESICAL DIVERTICULA REQUIRING OPERATION.

Dr. Hugh H. Young of Baltimore stated that a patient died after obscure bladder symptoms, and autopsy showed seven diverticula, the largest about five inches in diameter, communicating with the bladder by small orifices. Both ureters were compressed by the diverticula, and hydro-ureter and hydropelvis resulted. The patient died of uremia. Since then the operator has had four cases of vesical diverticula where operation was advisable, and was performed with success in each case. In two cases the diverticula were larger than an orange, in the others smaller.

The writer's four cases are all living and in good condition. In three cases the diverticula were completely excised, but ureteral transplantation was avoided by a plastic method. Renal infection was avoided, and no fistulæ resulted.

THE ULTIMATE RESULTS OBTAINED BY CONSERVATIVE PERINEAL PROSTATECTOMY IN SEVENTY-FIVE CASES.

Dr. Young also read a paper with this title. In this series there were five cases over eighty years of age, one eighty-seven years of age, with one death five weeks after the operation in a man aged eighty-four years. Two other deaths, neither attributable to the operation, occurred, each in the third week, one in a patient walking about and ready to go home, from pulmonary thrombosis, and the other in a man, seventy-seven years of age, who had been uremic for several weeks, and autopsy showed double pyo-hypo-nephrosis. The harmlessness of the operation was thus shown.

WHEN SHALL WE RESECT IN TUBERCULOUS DISEASE OF JOINTS?

Dr. C. H. Caldwell of Cincinnati, Ohio, in a paper on this subject stated that his judgment as to the advisability of resection in a given case of tuberculous joint disease would be influenced by many considerations. These considerations were given. A single tuberculous focus in the epiphysis of a long bone, which is susceptible of complete immobilization, stands a much better chance to undergo reparative change than will such a focus in the spongy bone of the wrist in the close proximity of synovial and ligamentous structures which favor dissemination and persistence of the disease.

The conservative treatment of joints was discussed at considerable length and was divided into three classes — ideal, satisfactory and unsatisfactory.

The results from the resection of the hip are of necessity unsatisfactory when complete, as with ablation of the head and neck of the femur, one leaves no *point d'appui* for the femur, and there must be a greater or less amount of give to it under the weight of the body. In tuberculosis of the knee one is confronted with an entirely different problem. There is but little use of wasting time with a knee joint in which marked osseous changes are already present, and which, in spite of conservative treatment over a period of six months, has shown no improvement. Resection of the knee in cases which have passed the period of adolescence has much to recommend it and but little can be said against it. In those cases long delay often means amputation. As to resection in elbow cases, one is again confronted with the fact that results are at the best far from what one may desire. In the wrist and carpal joints excision depends on individual judgment. Ankle joint and tarsal excisions are, as a rule, very unsatisfactory. The deficiency in weight-bearing capacity renders the result far more gratifying, and amputation is, so far as his observation goes, too frequent a sequel to these operations. Several skiagrams were exhibited, illustrating tuberculous joints and the results of resections.

OBLITERATION OF THE STOMACH BY CAUSTIC.

Dr. Samuel J. Mixter of Boston stated that doubtless other surgeons have seen cases of constriction of the esophagus after the ingestion of acid or strong alkalies, and also cases of constriction of the pylorus from the same cause. It is very rare, however, to find practically the whole stomach destroyed. The author reported three cases in which the stomach was almost entirely obliterated by caustics.

Dr. J. A. Goggans of Alexander City, Ala., reported two cases of tumor of the pancreas.

VAGINAL CESAREAN SECTION.

Dr. C. Jeff Miller of New Orleans reported a case and summed up the advantages of the method as follows: (1) In severe eclampsia, when the woman is unconscious between the convulsions, the cervix rigid and elongated, and delivery imperative, it is always preferable to abdominal section, and, under proper surroundings, may be preferable to metal dilators for manual dilatation. (2) In severe cases of accidental hemorrhage, when the cervix is closed, it is safer than the other method of *accouchement forcé*, owing to the rapidity with which the uterus can be emptied, and should be given preference over abdominal hysterectomy, which is generally advised. (3) It may be considered in other conditions where Cesarean section is indicated, except in contracted pelvis or dystocia, arising from maternal or fetal disproportion. It has not the disadvantages of an abdominal operation, in that the peritoneum need not be opened unless hysterectomy is to be preferred for malignancy, and there is less shock than follows abdominal operation. (4) It is not more dangerous than attempting to deliver either by version, or forceps, when the os is not fully dilated, if done under strict aseptic precautions.

Dr. Lewis C. Bosher of Richmond, Va., read a paper on

DERMOID CYSTS AND FISTULAE OF THE SACRO-COCCYGEAL REGION.

The author has operated on seven cases of dermoid cysts for fistulæ of the sacro-coccygeal region. After referring to the diagnosis and prognosis, he says that the usual methods resorted to for treating inflammatory fistulous tracts will seldom result in permanent cure. Complete extirpation of the fistula and sac must be performed to prevent a recurrence. It was to be noted that this is not always possible, as in a case reported in the literature by Wette, where complete extirpation would have involved opening the spinal canal, with serious injury to the nerves.

DR. MAGNUS A. TATE of Cincinnati, Ohio, read a paper on

HEMATOMA OF THE OVARY.

He presented a study of the cases which he had collected from the literature. These cases showed that three periods of life markedly predominate as a predisposing factor in the causation of hematoma of the ovary; First, before or during birth; second, at or near the first menstrual flow; third, early adult or child-bearing period. The age of child-bearing women who are afflicted with hematoma of the ovaries varies from fifteen to forty years, and the left ovary seems to be more frequently affected than the right. The author's study of the literature of hematoma of the ovary is very exhaustive.

PATHOGENESIS AND SURGICAL TREATMENT OF TUBERCULAR PERITONITIS.

DR. WILLIAM E. STOKES of Salisbury, N. C., after dwelling on the pathogenesis of this disease, divided it into four forms, the adhesive, suppurative, tympanitic and ascitic. The author quoted extensively from the literature of the subject, referred to the modes of infection, reported a series of cases occurring in his own practice, and spoke of the importance of histological examinations.

TREATMENT OF UTERINE BLEEDING.

DR. HERMAN J. BOLDT of New York City, supplemented his former report on the use of stypticin. The author cited a number of cases in which he used stypticin with marked effect, and gives also those in which it was ineffective. In thirty-five cases of fibromyomata, eleven were more or less benefited, while twenty-four were not. In one case of excessive menstruation due to an interstitial fibroid, the relief was very marked. In nine cases where hemorrhage was due to cancer of the uterus, the result was negative. Complete cure followed in from two to six days in five cases of post-puerperal bleeding after the removal of retained placenta particles. In conjunction with curetting, stypticin is found effective in hyperplastic endometritis, but in the glandular form results are negative. In one case out of five of retroversio-flexio-uterus with endometritis, the menorrhagia was relieved without resort to surgical intervention. In chronic retro-endometritis, five of nine cases were more or less benefited. In various forms of non-suppurative pelvic inflammation, only three out of twenty-three patients were not relieved by stypticin. In irregular bleeding during pregnancy stypticin has been found very beneficial, and no unfavorable symptoms have been noted. In profuse menstruation in virgins, without changes being found in the pelvic organs, only five of seventeen patients were not benefited. In atypical bleeding during the climacteric period, if no pathological cause is found, stypticin usually gives a satisfactory result.

The author remarks that while stypticin is not a panacea for all cases of uterine bleeding, he has found it better than any other remedy. In some instances it has practically served as a specific. If no effect at all is produced, after three large doses have been given (from 2½ to 5 grs.), it is useless to continue the drug. Likewise, in fibroids, it is not recommended to continue its use if two hypodermic injections of five grains each at intervals of four to twelve hours do not cause a diminution of the hemorrhage. An important fact is that the author has never noted any harmful results from stypticin, even when administered in such large doses as five grains every three hours. In some instances it also relieves the patients of pain associated with the profuse bleeding.

In instances of too profuse menstruation, the author finds the best plan is to begin with one grain doses, three times daily, about one week before the expected flow, and as soon as the flow begins to let the patient take two and a half grains every three hours, to be continued during the entire period. In instances of metrorrhagia, from two and a half to five grains may be given at intervals of from two to three hours, until the bleeding is lessened, then the dose may be decreased to from one to two and a half grains, at intervals of from three to four hours. If a quick result is important, it is best to give three to five grains in a 10% solution subcutaneously into the buttocks, using the customary antiseptic precautions. Because of the disagreeable taste of stypticin, it is best administered in the form of capsules, the pharmacist being ordered to put the powder dry into the capsule. It may, however, also be given in tablet form.

SOME POINTS IN THE TECHNIQUE OF ASEPTIC OPERATING.

DR. HENRY T. BYFORD of Chicago, in a paper with this title, said he does not offer any new method, but emphasizes the necessity of more thoroughness in those already used. The method he employs consists in (1) twenty minutes' scrubbing with green soap and water; (2) three minutes' in dilute acetic or citric or oxalic acid; (3) five minutes' in strong alcohol; (4) five minutes' in a 1-2000 solution of mercuric chloride in water.

The author considers the use of rubber gloves open to the objection of macerating the cuticle with danger of their being punctured and allowing septic sweat to escape. He deprecates the mixing up of the steps of the preparation by using a combination of green soap and alcohol, or by dissolving the mercuric chloride in alcohol, since aqueous solutions are more efficient than alcoholic. He advises disinfection of the hands one or more times during the course of long operations. Attention is called to the necessity of unusual care in the preparation of the field of operation in operating about the pubes and vulva. He recommends absorbent rather than occlusive dressings in the dressing of wounds after operation.

SUPRAPUBIC PROSTATECTOMY.

DR. W. H. DOUGHTY of Augusta, Ga., reported a case of suprapubic prostatectomy and described an improved method of after treatment. He also narrated an unusual case of intraperitoneal hydatids.

TRACHEOTOMY FOR GUNSHOT WOUNDS OF THE TRACHEA.

DR. J. MCFADDEN GASTON of Atlanta, Ga., discussed the subject of gunshot wounds of the trachea, and the complications that are likely to occur from septic infection or laryngeal stenosis. He reported a case of gunshot wound of the trachea in a female child, eight years of age. The position of the incision in the

trachea was lateral rather than on the anterior surface of the windpipe. The patient made an excellent recovery.

RUPTURE OF THE DIAPHRAGM.

Dr. George S. Brown of Birmingham, Ala., read a paper on this subject and reported an interesting and instructive case in a fireman, twenty-seven years of age, six feet tall, whose weight was one hundred and ninety pounds. The patient had hurt or strained his side slightly about two years before the rupture of the diaphragm occurred. Although an operation was performed, the case terminated fatally.

ENCEPHALO-MENINGOCELE.

Dr. W. D. Haggard of Nashville reported a unique case of encephalo-meningocele in a male child, four months of age. The operation was performed July 16, 1902. The child weighed six pounds, the tumor five pounds, and measured twenty-three inches in diameter one way, and seventeen inches another.

Dr. Haggard also described an easy method of instituting peritoneal gauze drainage through the cul de sac.

Dr. J. B. Murfree of Murfreesboro, Tenn., read a paper on

STRANGULATED HERNIA,

and Dr. E. Denegre Martin of New Orleans reported two cases of cancer of the appendix.

OFFICERS.

President, Dr. Lewis C. Bosher, Richmond, Va.; First Vice-President, Dr. John D. S. Davis, Birmingham, Ala.; Second Vice-President, Dr. I. S. Stone, Washington, D. C.; Secretary, Dr. W. D. Haggard, Nashville, Tenn.; re-elected; Treasurer, Dr. Charles M. Rosser, Dallas, Texas, re-elected.

Louisville, Ky., was selected as the place for holding the next annual meeting, in December, 1905.

Recent Literature.

Textbook of Human Physiology. By Albert P. Brubaker, A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1904.

Professor Brubaker brings to the preparation of this book the experience of twenty years of teaching, and he shows the value of the experience in his emphasis on the essentials of human physiology and in the clearness and directness of his presentation. The physiology of the "Master Tissues," muscle and nerve, is first considered, and then the history of the bodily energy is traced from food, through blood, to circulation, secretion, and the activities of the central nervous system and other expressions of that energy. The paper and typography are good, and the illustrations well chosen. The diagram on page 174 showing the epiglottis drawn tightly over the top of the larynx in swallowing should be altered to agree with the researches of Anderson Stuart and Eykman.

Hyde and Montgomery on the Skin. — A Practical Treatise on Diseases of the Skin, for the use of students and practitioners. By James Nevins Hyde, M.D., Professor of Dermatology and Venereal Diseases, and Frank H. Montgomery, Associate Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago. Seventh and revised edition. In one octavo volume of 938 pages, with 107 engravings and 35 plates in colors and monochrome. Cloth, $4.50, net; leather, $5.50 net. Philadelphia and New York: Lea Brothers & Co. 1904.

In the preface to the seventh edition of this well-known textbook, the authors state that every page has been thoroughly revised, much matter that was pertinent to its day has been eliminated, and much new text has been added. The illustrations have also been weeded out judiciously, with the addition of new and more modern figures. The new methods of treatment by the x-rays and that of Finsen have received due notice not only in a special chapter, but also in connection with the various diseases to which they are applied. Many new chapters have been added discussing forms of disease which have been lately described or elaborated, as for instance, granulosis rubra nasi, parapsoriasis, acrodermatitis chronica, etc. The book in its successive editions has been continually growing in size until now it amounts to nearly one thousand pages. The authors are to be congratulated upon having brought a textbook, whose value has always been recognized, up to the most modern requirements.

Regional Minor Surgery. By George Gray Van Schaick, Consulting Surgeon to the French Hospital, N. Y. Second Edition. Enlarged and revised. 226 pages. Illustrated. International Journal of Surgery Co., N. Y.

The object of this book is to furnish practical information on "minor" surgical condition. Since the publication of the first edition in 1902 (Reviewed in the Boston Medical and Surgical Journal, 1903, vol. cxlviii, page 320), the author has availed himself of the opportunity to make some additions to the volume and to thoroughly revise it. He states he has written the book, having especially in mind the needs of the general practitioner. The style is concise (at times so concise as to cause the text to be more suggestive than descriptive), and while there might be a difference of opinion between other surgeons and the author as to what might be called a "minor" surgical operation, still the book as a whole contains much that is of practical value. Many valuable hints and isolated facts are incidentally given, and often when treatment is not given in detail, what is said is so suggestive that the additional requisite information can be sought elsewhere. The book is attractively written and in general may be recommended to the physician who finds occasion to treat minor surgical cases.

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AIR EMBOLISM.

IN the earlier days of surgery great stress was put on the danger of air entering the veins during operations in certain regions. Such an event was thought to be almost invariably fatal and a belief in air embolism as an immediate cause of death was very general. Later, however, after the discovery of the Bacillus aërogenes capsulatus and the knowledge that other bacteria may produce gas in tissues as a result of their metabolic activity, doubt was thrown on cases of air embolism previously reported and the possibility of such an occurrence was even questioned. In recent years almost all of the reported cases, in which air has been found in the veins after death, have been considered as examples of infection with a gas-producing organism and true air embolism has been largely discredited.

The question as to the true nature of the condition has been reopened lately by J. S. Greene [1] in an admirable critical review of the entire subject, supplementary to a graduation thesis on the same subject printed forty years ago. As pointed out by him the question is by no means settled and a number of problems in connection with it still await solution.

Can the entrance of air into the venous system during operation, after trauma, or at childbirth produce death? Experimental evidence exists that a certain amount of air introduced rapidly into a vein causes the death of an animal, but the amount necessary is considerable (14 to 100 cc. for a dog, according to various observers). It can be assumed with certainty that the same thing would happen in man were air introduced into his veins, though the minimal amount necessary to kill a man is not known and it is probable that a few cubic centimeters would not lead to a fatal result. Conditions must be present which would lead to the possibility of a considerable amount of air quickly entering a vein, otherwise the result would not be serious. This can only happen when there is a considerable negative intravenous pressure and the possibility of access of air to the vessel or when air is confined in a closed cavity under pressure and the vessel communicates with this cavity. These conditions do not normally exist in the general venous system, but occur in the veins very near the heart or might possibly be present during the expulsion of the fetus and consequent rapid diminution of the size of the abdomen. Access of the vein to air under these conditions might cause death. The proof would be the existence of the necessary conditions and the finding at autopsy of gas in quantity in the venous system. For complete proof analysis of the gas, as pointed out by Greene, would be required. The gas found, however, probably would not be of the composition of atmospheric air. It should contain nitrogen, oxygen and carbon dioxide. The oxygen would probably be decreased in amount because the venous blood would take up a certain amount of oxygen, and the carbon dioxide would be increased because, with the absorption of oxygen, carbon dioxide would be freed from its combination with hemoglobin in the venous blood. Cases which could fulfil these requirements undoubtedly occur and some cases reported evidently belong to this group. An analysis of the gases supplemented by negative bacterial findings in a group of cases, however, is needed to give final proof to the belief in a true air embolism.

In many cases where gas is found in the venous system, its cause lies in a bacterial infection, usually an infection with the Bacillus aërogenes capsulatus. The gas in such cases contains hydrogen or some hydrogen compound. Since in cases of true air embolism the amounts of oxygen, nitrogen and carbon dioxide are apt to vary, probably always vary, from the percentage of each present in normal atmospheric air, and since the composition of the gas in bacterial infections depends on the infecting organism and the form of its nutrient supply, we are dealing with variable quantities in each and therefore an accurate analysis does not seem necessary. Gas produced by bacteria contains hydrogen, and a demonstration of its presence is sufficient to rule

[1] The Presence of Air in the Veins as a Cause of Death. Amer. Jour. of Med. Sc., Dec., 1904.

out true air embolism. The ignition test is sufficient for this. To collect the gas and ignite it is all that is needed — a test possible at every autopsy, and one which if made on a small series of cases would finally settle the question as to the occurrence and frequency of cases of air embolism.

One caution is to be emphasized in connection with determining the amount, character and importance of the intravenous gas *post mortem*. The autopsy must be done shortly after death, for production of gas continues with the growth of the bacteria after the death of the individual, and the amount found may greatly exceed the amount actually present at death and so lead to false conclusions. Moreover, the Bacillus aërogenes capsulatus is a common inhabitant of the intestinal tract, and a given case might well be one of agonal distribution of the bacillus and *post mortem* production of gas. In other words, that a case may be beyond criticism, the autopsy must be performed very soon after death and the gas collected, measured and tested for hydrogen. Only when this is done can we accumulate satisfactory data for the solution of the problems of air embolism and gas sepsis. At present it would seem that both occur and that the latter is far more frequent.

Another problem yet unsolved is the mode of production of death. Three views are held, heart death, lung death, and cerebral death. There is almost no experimental evidence that air passes through the lung to reach the arterial system and produce cerebral embolism. The most generally accepted theory is that the right heart becomes filled with blood containing air which is elastic and not propelled forward by cardiac contractions. As a consequence of this blood pressure falls and death ensues. There is evidence that air enters the lung capillaries and increases the resistance to the blood flow thus contributing a factor in the production of death. It is not probable that enough lung territory becomes so obstructed by air emboli as to be the sole cause of death and Wolffs has shown that air even escapes from the capillaries into the alveoli in these cases. At any rate, these questions remain in part open.

Finally, it is not known in cases of gas sepsis how far the gas itself is a contributing cause of death. It is possible that in some cases the gas is the immediate cause rather than the bacterial toxins. This has yet to be solved for individual cases.

The paper of Dr. Greene is timely and should serve to re-awaken interest in this question. The thorough study of future cases at early autopsy with tabulation of the findings, demonstration of the amount and character of the gases and bacteriological investigation of the tissues, supplemented by experimental study of the problems presented should lead to a final solution of the problems of the presence of air in veins as a cause of death.

DR. DOYEN AND THE CANCER QUESTION.

It will be remembered that not long since Dr. Doyen of Paris announced the discovery of a micro-organism which he believed to be the etiological factor in cancer, and also stated that he had elaborated a serum which was efficacious in its treatment. In view of the present state of our knowledge on this subject and the large number of unsuccessful attempts which have been made to isolate the causative organism, if such exists, it was natural that this statement should be received with a considerable degree of skepticism. Unfortunately much of the discussion of Dr. Doyen's discovery has taken place in the daily press rather than in the medical journals. The result has been a false popular impression.

The committee appointed to investigate the matter has returned its report, which appears in translation in the *British Medical Journal* for Dec. 24. As a result of the work of this committee arrangements were made between the Surgical Society of Paris and the Pasteur Institute through which a series of control experiments, both on the bacteriological and clinical side, might be undertaken by experts. Dr. Doyen invited Professor Metchnikoff to undertake the bacteriological part of the work, with whom were to be associated several clinicians of distinction. As the result these observers have followed fifty cases while under treatment, and at a meeting of the Surgical Society, held on Dec. 15, Professor Metchnikoff's report was read by Dr. Doyen, who also demonstrated cases and described his own methods of culture. Professor Metchnikoff's conclusions are in general as follows:

"(1) In several series of tubes into which M. Doyen had in my presence introduced fragments of cancers operated on by him, I have been able to obtain pure cultures of a microbe identical to that described by Dr. Doyen under the name of 'Micrococcus neoformans.' In one case the tubes remained sterile, but in several others cultures were obtained. In the great

majority of cases they were cultures of Doyen's microbe, whilst in a few cases the cultures consisted of a streptococcus, the Bacillus pyocyaneus, and some other microbes (in ulcerated cases). All the necessary precautions were taken to insure the sterility of the culture media employed, and the non-contamination of the fragments of the tumors introduced into the tubes. (2) In the cultures of Doyen's microbe we were able to observe all the characteristics described by M. Doyen respecting the Micrococcus neoformans. The question of the specificity of this microbe has not been definitely answered. This is a very difficult problem, for bacterial species are generally hard to delimit. It is useful, for example, in order to distinguish them, to apply perfected methods, such as the power of agglutination of the microbes by specific serums. We are now preparing such serums, but no results can be obtained before two or three months. From the appearance of the cultures of the 'Micrococcus neoformans,' this microbe presents a great analogy with those of the 'Coccus .polymorphus' of the skin, but an examination of the cultures on agar-agar shows a certain difference between the two microbes. (3) The study of the pathogenic action of Doyen's microbe on animals requires a much longer time than I have had, so far, at my disposal. (4) My rôle as bacteriologist is limited to the three first paragraphs of this note. My microbiological knowledge does not in any way authorize me to approach the clinical side of the question, the more so as I am neither a surgeon nor even a practitioner. I am not in any way competent to pass judgment; but as, at the time of my bacteriological investigation, I have been able to examine repeatedly during nearly two months a large number of cancer patients at M. Doyen's clinic, I have received the impression that several patients attacked by very grave cancers have been benefited by the injections of M. Doyen."

After reading these results of Professor Metchnikoff's investigation, Dr. Doyen summarized his own cases and drew the conclusions that the Micrococcus neoformans, as he has named his organism, has been found constantly in cancerous tumors from various sources and that the treatment undertaken usually brings about favorable modifications in from two to three weeks by reducing the volume of the growth and by rendering inoperable tumors operable. Dr. Doyen also is of the belief that a certain number of cases have been permanently cured, although naturally this matter cannot be absolutely determined as yet.

It will be seen from the foregoing report of Professor Metchnikoff that, quite unlike the reports circulated by the daily press, he maintains an attitude of skepticism regarding the whole matter, and considers, as no doubt the mass of scientific men will also do, that Dr. Doyen's claims, however much they may seem at the outset to be substantiated by certain clinical and bacteriological facts, demand the most painstaking study, experimentally and otherwise, extending over a long period, before they may be finally accepted. That the matter is under investigation by such men as Metchnikoff is a sufficient guarantee to the rest of the profession that whatever conclusions are finally reached, will be backed by scientific facts and will not be the product of enthusiasm merely. We may well await the final conclusions of these men, and in the meantime regard Dr. Doyen's so-called discovery as a possibility rather than as an assured fact.

It must be borne in mind that hasty conclusions are less and less justified, when we consider, for example, that the work of the Cancer Commission of the Harvard Medical School, after several years of painstaking investigation, has come to absolutely negative results.

GOVERNOR DOUGLAS'S RECOMMENDATIONS FOR STATE INSTITUTIONS.

IN his inaugural message, delivered Jan. 5, the newly elected governor of Massachusetts, William L. Douglas, discussed several matters which are of interest to physicians as well as to the community at large. We refer particularly to his suggestions regarding further accommodations for the insane and feeble minded of the state, to certain recommendations regarding the care of tuberculosis in prisons, as well as to the treatment of prisoners in general and the discouragement of crime.

Governor Douglas recommends that something each year should be done in excess of the minimum requirement in order gradually to relieve the overcrowded condition of institutions for the insane. He points out the fact that on the first day of October, 1650 beds were in use in corridors and day rooms, many of which had to be removed each day for the accommodation of the patients who could not find room in the ordinary wards. This, it appears, is a slight improvement on the condition of affairs a year ago, but it is evident that further provision should be made to avoid this unfortunate contingency in the future. Another urgent need, of which physicians have long been cognizant, is the inadequate accommodations in this state for feeble minded children and adults. With between five hundred and a thousand such children awaiting admission, very few have been accommodated during the past year, owing to lack of room. That members of

this class in the community are peculiarly in need of institutional care, both for their own sakes and for the peace of mind of the communities and families in which they may chance to live, is perfectly self-evident. The farm colony which is now in operation is, no doubt, doing much toward relieving the strain upon the institution at Waverley, nevertheless, still further resources seem necessary for the accommodation of this most unfortunate class. It is now recognized that such children, given proper care and supervision during the early years of their lives, may ultimately be able to take care of themselves and possibly be of some use to the community at large. Their continued residence outside of an institution is altogether to be deprecated. It is stated that the trustees of the school for feeble minded will ask an appropriation for the erection of two new buildings accommodating two hundred patients, and to this Governor Douglas urges prompt attention.

Another matter to which attention is directed is the question of tuberculosis in prisons. Of this the general public naturally knows little, but that tuberculosis exists among prisoners in this Commonwealth is well known by those in authority. It is recognized that, owing to the peculiar character of prison life and discipline, the proper treatment of these patents becomes a matter of extreme difficulty. Such measures are taken no doubt as modern ideas suggest, but the proper isolation of tuberculous prisoners is at best a matter of exceptional difficulty under existing conditions on account of the necessity of close proximity of the sick and well. The larger prisons have, in some instances, properly equipped hospitals, but this is not sufficient to check the progress of a disease like tuberculosis in the absence of proper opportunities for out-door exercise and sufficient fresh air. Governor Douglas thinks, and in this opinion he will no doubt have the agreement of the medical profession, that the conditions of prisons where tuberculosis exists would be greatly benefited could those suffering from the disease be removed to a place especially provided for their treatment. It appears that there are, at present, about eighty cases of consumption in all the prisons, not a large number, but certainly sufficient to demand isolation and treatment. It is suggested that a suitable location where such patients could be detained and treated might be had at relatively small expense, either on the state land in Rutland or elsewhere, as may seem desirable.

Finally, Governor Douglas lays stress upon the tendency of our present penal system to encourage vice and discourage virtue. This opens up the whole question of criminality in its relation on the one hand to disease and on the other hand to viciousness, and suggests the advisability of discussing the question anew from an expert standpoint. All of these measures to which we have alluded will, no doubt, meet with the general approval of the medical profession in the state, however much opinion may be divided as to the best means of carrying them to a successful outcome.

BOSTON TUBERCULOSIS PROBLEM.

Two articles have recently appeared in the daily press from the pen of Dr. W. T. Councilman urging the enlarging of Long Island Hospital in order that it might be possible to accommodate there the cases of tuberculosis which now have no asylum. This whole subject was discussed at considerable length several years ago, and very similar arguments to those advanced by Dr. Councilman were expressed editorially in our issue of March 7, 1901, and again commented on editorially in our issue of Nov. 13, 1902. Our contention then was that, accepting the fact that some provision must, in the near future, be made for persons suffering especially from chronic tuberculosis, the city was bound to consider the existing institution at Long Island as a possible hospital for these cases. As a matter of fact, a certain compromise was reached in 1902 through the opening of a department of that hospital to be devoted solely to the treatment of tuberculosis. This hospital, which accommodates between sixty and seventy patients, was almost immediately filled and of necessity the overflow took place into the original wards, restoring most unfortunately the conditions which had previously existed. No provision has as yet been suggested to meet this contingency. It is evident that further accommodations are demanded at Long Island whether or not the proposed municipal hospital be placed there. We take this opportunity to reiterate the opinion, expressed some years ago and again admirably brought to the public attention through Dr. Councilman's article appearing in the Boston *Herald* of Jan. 9, that Long Island must be seriously considered in the establishment of the proposed municipal hospital for tuberculosis. We need not again repeat the arguments which we have already expressed, and which Dr. Councilman also brings forward, but we are in general confident that the city has

before it an opportunity at Long Island to develop in an economical way a hospital for tuberculosis in conjunction with the existing hospital for chronic disease, which will go far toward meeting the present necessities of the situation. We fear it is unfortunately true that the city's finances are such at the present time as to make further unnecessary expenditure still less advisable than was the case several years ago.

MEDICAL NOTES.

DEATH FROM YELLOW FEVER, ISTHMUS OF PANAMA. — A report comes of the death from yellow fever at the Isthmus of a young woman, the wife of the private secretary of one of the Canal officials. This unfortunate lady had been married only a few months. There will be more victims of the Canal.

BELATED DELEGATES TO THE PAN-AMERICAN CONGRESS. — The steamer "Athos" which made a special trip from Baltimore Dec. 27, with fifty delegates to the Pan-American Congress, seems to have encountered the gales which prevailed along our Southern coast about that time. The "Athos" did not reach Colon until Jan. 6, too late for its passengers to take part in the proceedings of the Congress. They at least secured a long sea voyage.

ONE MILLION DOLLARS FOR KING'S HOSPITAL FUND. — Lord Mountstephen, at one time president of the Canadian Pacific Railroad, has given for the purposes of the King's Hospital Fund one million dollars. This gift was acknowledged by a personal letter from King Edward. The purpose of this fund is to distribute money as needed to various hospitals for such purposes as may appeal to the general council of the fund.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Jan. 4, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 24, scarlatina 29, typhoid fever 6, measles 8, smallpox 0.

The death-rate for the week ending Jan. 4, 1905, was 17.32 of total deaths reported.

THE HYDE PARK VACCINATION CASES. — The presiding judge in the Superior Civil Court at Dedham, Mass., has handed down a formal verdict in favor of the plaintiffs in the suit brought to recover damages for exclusion of two children from school because of their refusal to be vaccinated. This action is designed to render possible the adjustment of the case by the Superior Court to which it will now be carried.

THE SANITATION OF CITIES. — Prof. W. T. Sedgwick of the Massachusetts Institute of Technology is to deliver a course of lectures on this interesting and important subject, under the auspices of the Lowell Institute.

SMALLPOX. — It is reported that the State Board of Health has traced five cases of smallpox to the steamer "Cymric." The patients have scattered since their arrival, but the Boston Board of Health has followed them as well as other passengers and notified the authorities of the possibility of contagion.

VALIDITY OF THE BRIGHAM BEQUEST. — The full bench of the Massachusetts Supreme Court has handed down a decision sustaining the validity of the gift, now amounting to upwards of five million dollars, made by Peter Bent Brigham, for the foundation of a hospital. It is possible that the case will now be carried to the Supreme Court of the United States.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending Jan. 7, was 220, as against 229 the corresponding week last year, showing a decrease of 9 deaths, and making the death-rate for the week 18.67. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 28 cases, 3 deaths; scarlatina, 29 cases, 1 death; typhoid fever, 8 cases, no deaths; measles, 8 cases, no deaths; tuberculosis, 53 cases, 27 deaths. The deaths from pneumonia were 34, whooping cough none, heart disease 30, bronchitis 6, marasmus 1. There were 9 deaths from violent causes. The number of children who died under one year was 21, under five years 41, persons over sixty years 57, deaths in public institutions 77.

REPORT OF THE DANVERS INSANE HOSPITAL. — We notice from the annual report of the Danvers Insane Hospital (1904) that the overcrowding continues to be a pronounced and objectionable feature of that institution, and this, notwithstanding the construction of very satisfactory new buildings for women with accommodation for from 200 to 250 patients. The superintendent states that the number of admissions in the last hospital year, 764, was the highest received in any one year since the hospital opened, being 332 in excess of the number admitted the previous year. This large increase was due, in a measure, to the enforcement of the State Care Act, which

transferred to state hospitals the insane in town and city almshouses, and has no significance as regards the increase of insanity. The number of patients discharged, 576, exceeded the number discharged the previous year by 151, and yet the net gain for the year was 188. We believe this is the general experience of the Massachusetts Insane hospitals. Seventeen patients died from tuberculosis during the year. Plans are under way for two special wards, one male and one female, for tuberculous patients, so built that they will be available at all seasons of the year. Increased bathing facilities are greatly needed.

NEW YORK.

Tenement House Commissions. — In regard to the work of the Health and Tenement House Commissions Mayor McClellan recently spoke as follows: "The Health Department has been conducted with great vigor and success during the past year. It has shown marked results, not only in the carrying out of its routine duties, but also in the taking of the initiative in devising and furthering certain plans for the prevention as well as the cure of some of the more common diseases to which the city is subject. The administration of the Tenement House Department has effected notable progress in a more perfect, thorough and uniform enforcement of the Tenement House Law. The practical elimination of the social evil, with its deadly moral contamination, from the homes of the people is a most important and beneficent effect of the work of this department."

Water Supply. — In his annual message, Mayor McClellan lays stress on the prime importance of the future water supply of New York, and expresses the opinion that it is necessary to begin now to make provision beyond the immediate future, provision for the city which within quite measurable time may number ten million inhabitants. As a practical suggestion, he proposes a special enactment creating a commission of three members to be appointed by the mayor, one on the recommendation of the Chamber of Commerce, one on that of the American Society of Civil Engineers, and one to be named by the mayor.

State Death-rate in November. — The monthly bulletin of the State Board of Health states that the death-rate in the state during November was 16, as against 15.2 for the average of the last five years. The number of deaths averaged 339 *per diem*, against an average of 280 a day in the last fifteen years. The deaths from respiratory diseases, 72% of which were from pneumonia, exceeded the average for the month of November by 250, and those from circulatory diseases by 200, while those from diseases of the urinary system, including Bright's disease, were 15% above the average. The chief cause of the increased mortality was pneumonia, to which 1,220 deaths were attributed, as against 800 in October. Twelve per cent of the total mortality was from this disease, as against 8% in October, and 9.4% in November of last year. The deaths from it exceeded the entire epidemic mortality by 50%, while those from Bright's disease nearly equalled this mortality.

Miscellany.

STATE HOSPITALS FOR THE INSANE.

In his first message to the New York Legislature, Governor Higgins devotes considerable attention to the state hospitals for the insane. These are fourteen in number, and on Oct. 1, 1904, had a total number of 25,019 patients. After referring to the complete centralization of the management of those institutions under the State Commission in Lunacy, with the abolition of the local boards of managers, as effected by the legislation of 1902, he states that the advantages of centralized control of the financial operations of the hospitals are evident. He thinks it very desirable, however, that this great system of hospitals, involving the expenditure of so large a sum of money annually and the care of so many thousands of peculiarly unfortunate and defenceless persons, should rest upon a broad basis of public interest and public confidence, and should retain the co-operation of philanthropic citizens throughout the state. In his opinion this can best be secured by leaving the control of all financial matters, as at present, in the hands of the Commission, and by providing for each hospital a board of managers in general charge, through the superintendent, of the internal affairs of the hospital. In regard to the increased accommodations required he says: "The present overcrowding of the state hospitals, the large increase in the number of the insane each year, and the expiration, next September, of the lease of the buildings now occupied by the twelve hundred patients at the Long Island State Hospital at Flatbush, make it imperative to take action during the coming session for a material enlargement of state hospital accommodations. This can probably best be met, in part, by additional accommodations in existing hospitals, and in part by the establishment of a new state hospital. In increasing the accommodations in existing institutions the importance of providing for each state hospital a building especially adapted to the treatment of acute insanity should always be borne in mind."

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, DECEMBER 31, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York	3,908,644	1,453	379	20.03	—	3.06	.48	1.22
Chicago	2,021,086	654	167	19.87	26.75	2.29	2.29	—
Philadelphia	1,467,988	497	133	18.70	19.31	2.41	2.21	.20
St. Louis	633,896	—	—	—	—	—	—	—
Baltimore	549,229	182	43	21.97	16.83	1.65	1.65	1.30
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	363,403	—	—	—	—	—	—	—
Cincinnati	325,577	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	81	11	12.34	17.27	—	1.23	—
Boston	617,950	169	30	17.16	22.48	2.96	1.18	.59
Worcester	136,925	49	9	10.20	20.40	—	—	—
Fall River	119,949	42	17	19.04	26.19	2.38	—	—
Lowell	104,402	29	10	3.45	20.69	3.45	—	—
Cambridge	100,998	35	5	14.28	25.71	—	—	—
Lynn	78,875	28	12	11.71	3.57	3.57	3.57	3.57
Lawrence	79,948	24	5	8.33	16.67	—	—	—
Springfield	73,990	—	—	—	—	—	—	—
Somerville	70,413	20	6	25.00	15.00	5.00	—	5.00
New Bedford	68,883	23	6	17.39	26.09	—	—	—
Holyoke	50,588	13	5	15.40	7.70	7.70	—	—
Brockton	46,601	11	1	18.18	9.09	—	—	—
Newton	39,310	6	2	16.67	50.00	—	—	—
Haverhill	39,061	12	5	16.67	8.33	—	8.33	—
Malden	37,905	14	2	21.43	14.28	—	—	—
Salem	37,188	20	5	5.00	15.00	—	—	—
Chelsea	36,499	19	2	16.67	5.55	—	—	—
Fitchburg	36,535	—	—	—	—	—	—	—
Taunton	34,577	13	1	8.33	41.65	—	—	—
Everett	30,329	4	2	50.00	—	50.00	—	—
North Adams	29,301	8	2	—	12.50	—	—	—
Quincy	26,798	5	—	40.00	—	—	—	—
Gloucester	26,127	—	—	—	—	—	—	—
Waltham	25,797	7	—	—	—	—	—	—
Brookline	25,576	6	—	—	16.67	—	—	—
Pittsfield	22,870	4	—	—	50.00	—	—	—
Medford	21,956	1	—	—	100.00	—	—	—
Chicopee	21,692	14	7	21.42	28.42	14.28	—	—
Northampton	20,514	10	4	—	—	—	—	—
Beverly	15,807	5	1	—	20.00	—	—	—
Leominster	15,711	2	—	50.00	—	—	—	—
Clinton	15,694	2	0	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,509	2	1	—	—	—	—	—
Newburyport	14,478	3	0	—	33.33	—	—	—
Woburn	14,315	—	—	—	—	—	—	—
Melrose	13,819	1	0	—	—	—	—	—
Westfield	13,809	4	—	25.00	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	6	1	33.33	—	—	—	16.67
Revere	13,609	4	2	25.00	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,408	—	—	—	—	—	—	—
Gardner	13,234	1	—	—	100.00	—	—	—
Southbridge	11,716	7	7	57.20	43.00	28.60	—	—
Watertown	11,575	3	1	—	33.33	—	—	—
Weymouth	11,350	5	1	20.00	20.00	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,497; under five years of age, 888; principal infectious diseases (smallpox, measles, scarlet fever, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 661; acute lung diseases 433, consumption 352, scarlet fever 23, whooping cough 13, cerebrospinal meningitis 25, smallpox 3, erysipelas 12, puerperal fever 18, measles 11, typhoid fever 41, diarrheal diseases 58, diphtheria and croup 91.

From whooping cough, New York 1, Chicago 9, Philadelphia 2, Revere 1. From scarlet fever, New York 16, Chicago 2, Philadelphia 2, Baltimore 2, Providence 1. From cerebro-spinal meningitis, New York 18, Philadelphia 1, Baltimore 2, Boston, Lynn, Somerville and Marlborough 1 each. From erysipelas, New York 7, Philadelphia 2, Baltimore 1, Boston 1, Salem 1. From smallpox, Chicago 3.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Dec. 17, the death-rate was 19.2. Deaths reported 5,631; acute diseases of the respiratory organs (London) 272, whooping cough 69, diphtheria 66, measles 146, small pox 6, scarlet fever 43.

The death-rate ranged from 7.7 in Hornsey to 30.2 in Hanley; London 19.0, West Ham 17.7, Brighton 16.5, Southampton 10.2, Plymouth 27.4, Bristol 25.5, Birmingham 20.6, Leicester 14.2, Nottingham 20.7, Birkenhead 23.6, Liverpool 23.1, Wigan 25.7, Bolton 16.9, Manchester 22.7, Salford 22.3, Halifax 17.4, Bradford 21.2, Leeds 13.1, Hull 23.5, Sheffield 14.8, Newcastle-on-Tyne 21.8, Cardiff 19.8, Rhondda 16.2, Merthyr Tydfil 16.5, Bournemouth 13.9, Walsall 16.5.

METEOROLOGICAL RECORD.

For the week ending December 31, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	Weather. 8.00 A.M.	Weather. 8.00 P.M.	Rainfall in inches.
S.. 25	30.48	12	19	6	53	52	52	N	N	12	12	O.	O.	T.
M. 26	30.51	22	30	15	68	63	73	N	S E	13	5	O.	O.	.02
T.. 27	29.87	35	41	27	94	98	96	E	N W	8	5	R.	R.	1.03
W. 28	29.80	35	43	29	98	89	67	N	W	4	20	R.	C.	.53
T.. 29	29.79	27	32	22	46	54	50	W	S W	27	17	C.	C.	0
F.. 30	30.04	29	34	24	52	68	60	S W	S W	8	6	O.	C.	0
S.. 31	29.78	37	46	28	58	44	51	S W	S W	9	14	O.	O.	0
Mean	29.97		35	22			64							1.58

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY THE WEEK ENDING JANUARY 7, 1905.

J. H. PAYNE, passed assistant surgeon. Detached from the "Marietta" and ordered home to wait orders.

JOHN W. ROSS, medical director. To be placed on the retired list Jan. 11, 1905, under provisions of Section 1444, Revised Statutes, upon which date he will reach the age of sixty-two years.

JOHN W. ROSS, medical director. Ordered to continue duty with the Isthmian Canal Commission after retirement, Jan. 11.

JOHN B. STEELE, surgeon. Detached from the Naval Recruiting Station, Baltimore, Md., and ordered to the "Colorado," Jan. 10.

M. K. ELMER, assistant surgeon. Detached from the "Hancock" and ordered to the Naval Hospital, New York, N. Y., for treatment.

P. F. MCMURDO, acting assistant surgeon. Detached from the Navy Yard, League Island, Pa., and ordered to the Naval Recruiting Station, Baltimore, Md.

H. N. FERRERE, medical director. Having been examined by a retiring Board and found incapacitated for active duty, on account of physical disability incident to the service, retired from active service Dec. 31, 1904, under Section 1453, Revised Statutes.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — The Annual Meeting of the Society will be held in Sprague Hall, Boston Medical Library, on Monday, Jan. 16, 1905, at 8.15 P.M. Subject: Aural Vertigo. The following short papers will be presented: 1. Vertigo of Aural Origin, Dr. C. J. Blake. 2. Ménière's Symptom Complex, Dr. W. A. Lecompte. 3. Middle Ear Operations for the Relief of Vertigo, Dr. E. A. Crockett. 4. Lantern Exhibition of Illustrative Specimens, Dr. E. DeW. Wales. Business: Report of the Nominating Committee. Report of the Auditing Committee. Balloting for Officers at 9 o'clock. The assessment for the ensuing year will be voted. The number of meetings to be held during the year, and the general policy of the Society will be considered. There will be a social half-hour after the meeting.

ARTHUR K. STONE, M.D., *Secretary.*
CHARLES M. GREEN, M.D., *President.*

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — The annual meeting of the Society will be held at Hotel Nottingham, Boston, Mass., on Thursday evening, Jan. 19. Supper will be served at half past six.

DR. AGNES C. VIETOR, *Secretary.*

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Jan. 13, from 10 A.M. until 12.30 P.M.: Internal Urethrotomy; Appendectomy; Amputation of leg; Wiring of Fract. Patella.

Original Articles.

THE HUMANE TREATMENT OF MALIGNANT DISEASE FROM A SURGICAL POINT OF VIEW.*

BY JOHN C. MUNRO, M.D., BOSTON.

When asked to present this paper, your President kindly suggested that I call upon the different surgeons for illustrative cases, both of us supposing that it would be difficult to secure a sufficient number to make an argument. Accordingly I applied to Dr. Gay and Dr. Lund as representing two periods of surgical activity. With the cases that they furnished, added to those from our clinic at the Carney Hospital, I find that I have more than I need unless the paper were to be merely a collection of dramatic cases. Hence I have made use of only a few illustrative types.

However earnest an advocate you may think me, because of the few encouraging results, remember that I am pleading on the defendant's side. The other side has been so vigorously, and I believe inhumanely, forced upon us within recent years, that I shall limit my argument to-night to the plea for more frequent interference in incurable malignant disease. I find that as I grow older I am more willing to operate where there is the smallest outlook for relief. This is contrary to the experience of many. I doubt if any surgeon dreads these cases more than I do. I have had too many sad and disappointing experiences. Indeed, could I consult my own pleasure I would never see another patient with malignant disease. On the other hand, nevertheless, every now and then in the midst of this malignant Sahara, there comes most unexpectedly an oasis in the shape of a permanent cure or a long period of relief from suffering, followed by a painless, comfortable final illness, and I am forced to discipline myself with the query whether, after all, one such happy outcome is not worth dozens of discouraging ones. It is just this bit of encouragement that I wish to bring out to-night.

Is it not possible that the flourishing trade carried on by cancer quacks and other charlatans may be due to the wave of pessimistic nihilism that has flowed over our profession? Can we not give the mental relief that our patients derive from the charlatan?

In dealing with cancer we must consider the immediate operative results as shown in relief from physical and mental suffering, as well as the remote results as shown in permanent cure. Neither surgery nor any other form of treatment is yet able to assure permanent relief in more than a small percentage of cases. Surgical cure depends upon the locality of the disease and the stage at which operation is done. This leaves a large number of hopeless patients, hopeless so far as a cure is concerned; patients who instinctively know that their disease will inevitably kill, in many with severe and loathsome suffering, slowly, persistently Is it enough for us to sit by, inert, accepting the fact, criticising the thousand and one charlatans to whom our patients will apply almost inevitably for the advertised relief? Must we surgeons simply berate our medical confrere because he has asked for surgical relief long after it is too late, instead of carrying on our surgical work to the best of our ability?

The tenacity with which the average middle-aged patient clings to life when he realizes that he is the victim of an incurable malady is sometimes frightful. In my experience it is rare to find one who is not willing to postpone the inevitable and final suffering provided he can be temporarily relieved, even at a considerable sacrifice. When the facts are honestly and frankly presented to such patients, I have found that they are not only willing, but anxious to obtain temporary respite. Where the facts have been previously distorted, and the temporary discomforts attendant on operation have been magnified and horrified by the ill-judged and oversentimental family doctor, it is almost useless to offer any hope of surgical relief. As illustrative of this tenacity to life, Dr. Lund has kindly allowed me to report a most striking case.

His patient, a woman sixty-nine years of age, came to his office four years ago with an epidermoid carcinoma on the bridge of the nose. This was excised and a graft from the arm applied to the denuded area. The cosmetic result was excellent, but small recurrences appeared which under local anesthesia were removed at various times. These operations did not require confinement to bed. They healed readily, and she was comfortable and happy as long as the growth was removed. Two years and a half after the first operation a second plastic was necessitated. She was then placed under x-ray treatment for six months. At first the growth was apparently controlled, but later the x-ray had very little effect except to cause irritation. The mental suffering from the knowledge that she had a cancerous growth was great, and it was determined to amputate the nose. This was done ten months ago. Four times since then there has been a small recurrence for which a slight operation has been done in addition to two other operations requiring a slight plastic. She is now seventy-three years of age, in excellent health and attending to her duties. She is happy and is not subject to the great misery and discomfort of an ulcerated growth on the face. In her case, by persistent operation, eighteen operations in all having been performed, her life has been prolonged in comfort and happiness for four years.

Do all patients who are temporarily relieved by operation die with as much pain and suffering as those who are left alone from the first?

Each one must answer this according to his own observation, and according as he is an optimist or a pessimist. Being an optimist I believe that there are enough desperate cases of this sort relieved to make it not only worth our

* Read at a meeting of the Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society, Dec. 7, 1904.

while, but even our duty, to hold out these chances to the patient that seeks our counsel. It cannot be proven with any degree of exactness, and to quote a series of illustrative cases would be a waste of time, because no one can estimate what might have happened had the treatment been otherwise.

The question of our ability to make an absolute diagnosis is a most serious one, and as mistakes in this direction too frequently are the cause of needless suffering to the patient, humiliation to the diagnostician, and opprobrium upon the profession, I will cite a few cases before we consider the bonafide malignant types.

Within a week I have operated upon a case of simple pyloric stenosis that was refused operation at two of our hospitals on the ground that the patient was dying from cancer. Here was a concensus of authoritative opinion that that patient, an ignorant lay individual, could have no right to question. The best advice obtainable was given, advice that told the patient to go home and die without being offered the chance of seeing if there might not be a mistake on the part of the examiners.

Let me cite a similar case where my own curiosity got ahead of my diagnostic knowledge. A man was under the best of medical care for pyloric cancer. There was no question in any of our minds that he was rapidly dying of malignant disease. Exploration showed a benign stenosis that was easily repaired and followed by permanent recovery. You may say that these were bad blunders in diagnosis, and so they were, but they were not half so bad as the result would have been had we all folded our hands and awaited the results of our stupidity. It is almost a supererogation to bring up this phase of the question, because we all recognize the limits of our diagnostic ability. More than the pathologist, almost, the surgeon unearths mistaken diagnoses, and the end is not yet. What the surgeon does learn, and this I believe applies with especial force to the younger generation, is that unless he can absolutely and definitely make a diagnosis of inoperable malignancy, especially when dealing with the abdominal cavity, it is safer to explore for absolute confirmation. I would add furthermore, that when he can make the absolute diagnosis that condemns the patient to death, then most of all, he had better — explore!

What is the danger of an exploration in the abdominal cavity? I believe that in experienced hands it is as near nil as anything in surgery can be. As a student, I was taught that a patient with malignant disease rapidly succumbs in consequence of a needless operation. I now believe that that is far from the fact provided the surgeon knows enough to stop at the exploration, when no benefit can be obtained by doing more. In moribund cases, that is, cases that are bound to die shortly, one may see the end come a few days earlier in consequence of any operation, but of that class I am not speaking. These unfortunates die of sepsis, malignancy, starvation, or cumulative suffering plus the operation which is offered as a desperate chance. But the patient who is able to be relieved by medical therapy, who normally would be allotted a few weeks or months,—such a patient can stand an exploration well enough to make it justifiable. In this regard I cannot pass by without comment a statement in a paper by Dr. Fitz on "Some Surgical Tendencies from a Medical Point of View," published three years ago, in which he tabulates the percentage of deaths in exploratory laparotomy as varying from 28 to 61%. By what process of calculation or tabulation this result was reached is incomprehensible unless the cases were moribund at the time of operation. If we contrast with this the record of a hospital where of one thousand abdominal sections for every type of disease that can come to the surgeon less than 3% died, the statement in Dr. Fitz's paper is still more incomprehensible. It seems to me that his deductions are narrow, misleading and not according to the facts, and it is unnecessarily unfair to modern surgery to allow our medical and general practitioners to carry such an appalling mortality in their minds when the question of operating for absolute diagnosis comes up in these malignant cases. To operate for diagnosis without exhausting all other means first is wrong, and to be condemned *ab initio;* but more wrong is it to withhold the possibility of accurate and visible knowledge, if, by so doing, we give our patient one chance in a thousand for relief.

There is another phase of this question of the humane treatment of cancer in the query as to how many of us can detect, without the aid of the pathologist's microscope, the malignant invasion of a benign growth. What surgeon is there that has not operated for a supposed malignant process in the abdomen only to find an apparently benign tumor that is easily and thoroughly removed? Then the pathologist's report shows a beginning malignant deposit, microscopical, not infiltrating. Not long ago an elderly woman was referred to me with a diagnosis of malignant disease of the gall bladder. Operation showed a lot of stones in a healthy bladder which was excised. The pathologist found a small ulcer in the earliest stage of malignant infiltration. Who of us has not enucleated simple hypertrophied prostates only to find a malignant focus beginning in the center? Cases like these can be duplicated indefinitely. The question of the expediency of operation in malignant disease where the respite is to be measured by a few weeks, is an open one. It must be judged not on the sentimental question of prolongation of life, but on the possibility of relief from suffering. A few suffer just as much, and perhaps more, because of a mutilating operation. Many can be relieved of pain, disagreeable discharges, starvation, obstipation, retention, jaundice, headache, salivary incontinence and other distresses only to have a relapse preceding the final relief by death. The patients, and especially the friends, may be disappointed at the last, however well they were forewarned of the inevitable. But as I compare these cases with those for

whom no surgical relief has been attempted I believe that their suffering is less prolonged, that it is more readily controlled by morphia, and when the case is summed up after death, the friends are better satisfied that some struggle for life was made. To accept the statement of a patient or his friends, especially if given in an impersonal letter, as to the sufferings following palliative operation, is not always fair. I have not infrequently found that there is distortion and exaggeration. They do not give the relative value of the suffering as compared with that endured belore operation. If they are interviewed personally and reasoned with, I find that their complaint is influenced more than they realize by the disappointment that the relief has not proven to be a cure. In this regard I am reminded of the direful tales that came to me through some friends of a young girl for whom we had done a gastro-enterostomy. Anxious to learn the facts I sought the patient and found that all her distress and suffering was based on the fact that she had been unable to eat as much cabbage and baked beans as some of her associates. So it is with our dying cancer patients. They and their friends forget the suffering that existed before operation and exaggerate their lessened suffering because they see life ebbing away with every chance of help gone.

In face of the discouragements in dealing with this type of case, every now and then a patient is entirely relieved of distress and suffering for weeks and months, until death comes quietly from a general malignant toxemia, a form of euthanasia that *a priori* would have been out of the bounds of possibility without the operation. The patient and his friends are reconciled to the mutilation because of this relief. One case like this among a score of the other type, gives the surgeon encouragement, makes him feel that he can point to his operation not as a pyrotechnical display, but as a humane method for relieving suffering. One conspicuous case of this sort, among many discouraging failures, came to my notice a few years ago.

A man with cancer of the upper jaw, anemic, suffering pain and all the discomforts that go with that loathsome disease, came to our service at the Boston City Hospital hoping for some relief. Morphia stopped the pain, but only the pain. It merely exaggerated his other sufferings. He had been refused operation at one of our large hospitals, and applied to me personally for succor. My senior visiting surgeon refused to operate, and refused to allow me to operate, and the case hung along for several weeks steadily growing worse, the cheek ulcerated and discharging, and the fetor uncontrolled by washes. Finally the patient's importunities and my own won the day, and I operated hoping that death would come on the table. What was my surprise six months later to have a sunburned, strong, healthy man come into my office with his scar scarcely visible and with no sign of recurrence. What his later history is I do not know, but I believe that the operation was more humane than my neighbor's advice to go home with a bottle of morphia and die.

Let me cite another case. A man emaciated and suffering from pain and vomiting came to our clinic in the Carney Hospital in October of last year where we operated for cancer of the pylorus with metastasis. I saw him seven months later when he informed me that he had eaten three square meals a day since operation, had not lost a day's work, and was only beginning to lose his general strength, evidently from a general malignant invasion.

A year ago Dr. Bottomley removed a cancer of the tongue with the floor of the mouth and cervical lymphnodes. To-day the patient is well and strong, gaining weight and without a sign of recurrence. Is there a single surgeon here who cannot duplicate these cases many times over?

A small proportion of cases of cancer are fulminant from the outset. Surgery is of little or no avail in this type. We should not conclude, however, that because we happen to see an occasional fulminating case, that all malignant cases are counterparts, and that hence they should be refused surgical consideration. I have found too often that a consultant who has had a sad experience in his earlier cases, jumps to the conclusion that all of his succeeding cases are equally hopeless. If we all gave up our work because of our failure in a given case, surgery would soon die out altogether. In estimating the value of surgery it is not quite fair to say that of so many operations, such and such a percentage died in one month or three months, or six months. It goes without saying that every one of the patients would have died within a short time whether operated upon or not. We must determine whether the space of time allotted to them has been inflicted with more or less poignant suffering.

In reviewing, for instance, the sixty or more cases of cancer of the stomach that we have operated upon, I believe that the relief from suffering far over-balances the increase. Some of the desperate cases were either not relieved or possibly made worse, though that hardly seems possible. The cases limited to exploration suffered so little, so far as one can tell from conscientious observations, that it can practically be eliminated. These patients are allowed to sit up in a day or two, and to go home within a week. It is surprising to see the mental relief that some of them enjoy, realizing that something definite has been done. They may know instinctively that nothing radical has been accomplished, and yet they seem happier and their entire *morale* changes.

When we consider cancer of the intestine we should be very conservative in committing such patients to medical treatment. Excision if done early, anastomosis at any stage, and colostomy, disagreeable as the thought of it is to the patient, are every one humane when compared with the treatment by medical palliation. The most crying need, now, is that the family physician

should turn over such cases at the very earliest in order that the growth may be resected, with a small risk to life and a fair outlook for long relief. If we include in our colostomies the anus made alongside the sacrum the reports of success from all over the surgical world are too encouraging to be lightly turned aside. Of cases of this type Dr. Gay has kindly furnished me with several, one of them being as follows:

A man, forty-eight years of age, had a lobulated growth removed from the rectum. Placed under the compound tincture of iodine treatment, he was able to work for six years when recurrence at the same location took place. A Kraske was then done and he returned in a few weeks to business, dying two years later from recurrence, being fairly comfortable for a year or so. He mentions another case of palliation in an old man, emaciated, with incontinence and suffering from a growth involving the lower three inches of the rectum. Operation entirely relieved him of pain, and the need of morphia. He gained weight, and in every way was benefited. In closing his letter, Dr. Gay makes the following observation, which, coming from one of his experience, I take the liberty of quoting:

"Not infrequently an operation is demanded by the patient. He is determined to have something done. The outcome which is in the future does not disturb him. The present concerns him, and he will not sit down and allow the disease to pursue its normal course without making an effort to stop it. If the reputable surgeon will not treat him, is it any wonder that he seeks the services of an unscrupulous advertiser as so many do under these circumstances? In the majority of these cases we are seeking relief, not a cure. As surgical measures give more relief in many cases than anything else, I believe it is our duty to offer it to them in accordance with our best judgment even if it does not cure or always bring the relief which we were led to expect under the conditions. Euthanasia, extending over weeks or months, is worth fighting for by all the means at our command, and in many instances surgery will do what nothing else will in that direction."

Not to take up tedious statistics, I will briefly note that of 43 cancers of the rectum, Czerny lost only 3 by operation, the remaining 40 living from forty days to three and a half years, 12 surviving longer than a year.

I well remember seeing a case of cancer several years after Dr. Post had done a Kraske, well, happy and strong. He died from a shock five years after operation without any evidence of recurrence. Could this man or his family be persuaded that a continuation of his original symptoms treated with opium would have been preferable to the operation?

Dr. Lund gives me the result in a case of cancer of the sigmoid for which he performed Mickulicz's operation. A year later she had gained forty pounds, and was actively doing her housework.

It would be tedious to repeat similar cases that have come within my knowledge. A serious error of which the conservative practitioner as well as myself has been guilty, is relying upon the false security and hope that intervenes between the earlier symptoms and the final crash in cancer of the colon. Nothnagel pointedly remarks that in these cases there is, at first, a number of short paroxysms of pain that appear for one or several days. After this comes a quiescent period that may last for weeks or months only to be followed by a number of attacks coming at short intervals with the final occlusion or other fatal symptoms. It is the inhumanity of resting inert during this period of quiescence instead of insisting upon surgical relief, that I would condemn. When the final ante-mortem symptoms appear, surgery is desperate, disheartening and inhumane, not because it is futile in itself, but because it has been applied at a futile period. To illustrate with one of a number of typical cases that have come to me personally, let me report the history of a patient that I saw very soon after the first symptoms of a cancer of the colon. Operation was advised within a few days. A medical consultant then saw the case, confirmed the diagnosis, but counselled palliative treatment under which the symptoms cleared up for a while. A month later I was called to operate for relief of the final obstruction in a patient in no condition to stand interference. It was attempted however, and a circumscribed annular constriction was found that a month earlier could have been easily removed with every chance of permanent relief. Can we, by any juggling, convince ourselves that it was humane to treat a case like this conservatively for a mouth only to be condemned to an emergency operation at the close? Not this one case, but a goodly number of similar cases convince me more and more of the lack of humanity that the hesitating or the skeptical conservative shows in dealing with patients of this sort.

Contrasted to this picture, I recall a man that I saw in consultation not long ago dying easily and comfortably after a resection of a cancer of the sigmoid done by Dr. C. B. Porter some five years before.

It is consoling to find in the last edition of Nothnagel that the only way to arrive at a positive diagnosis in abdominal cases with indefinite or ambiguous symptoms, is by exploratory laparotomy, that when there is cancer of the intestine, there is no known internal method of treatment which is of any use, surgery being indicated at the earliest stage.

The physician rarely hesitates to refer his patient with a malignant external tumor to the surgeon at once. It seems a simple affair to attack something outside the body cavity. As a matter of fact with modern technic it is not infrequently simpler to attack an internal growth in the early stages. Is not an early cancer of the gall bladder, pylorus, sigmoid, or ovary less formidable than a cancer of the nose, the lid, the penis, the tongue or the neck? The decision in these cases must not be made by the physician

entirely. The opinion of the surgeon should be invoked in justice to the patient.

In some of the malignant tumors of the neck it is well nigh hopeless to undertake anything except some such treatment as the x-ray for its mental or analgesic effect, and yet some years ago I removed as much of a cancer of the thyroid as I could to relieve a tightly compressed trachea and sent the patient back to the Provinces wearing a tracheotomy tube. A little over two years later, she sent the worn-out tube to me to be repaired, but before a new one could be returned, she choked up and died having lived comfortably and actively all that time with the exception of a few weeks.

To enter into a discussion of the value of the x-ray or Coley's serum would take us far from our subject. I personally feel that the Coley serum is still too uncertain for employment except in cases beyond surgery, and that the x-ray is already doing more harm than good, except in very limited types. I hesitate to advise the use of either where I conscientiously believe that as good or better temporary results can be obtained by operation.

In conclusion, let me beg of my medical friends to yield to the fact that cancer, wherever situated, is a surgical disease, especially in its early stages; that up to the present time surgery, and to a less extent, the x-ray, are the only and best known forms of treatment that promise permanent or temporary relief; that the outlook for success depends upon the early resort to surgery where operation is available; that the surgeon should be the judge as to the possibilities of surgical treatment. To the surgeon I would appeal for a little more optimism in dealing with the apparently hopeless cases. I would ask him to consider the discouraging outlook less, and to be ready to struggle in behalf of these hopeless unfortunates a little more. To the patient I would appeal to accept the fact that cancer is incurable in a majority of cases; that the well-trained physician or surgeon will help him more honestly, more honorably and more successfully than the untrained charlatan who has done, and seems likely to do, infinitely more harm than can be calculated by any human mind.

A BRIEF CONSIDERATION OF SOME OF THE RESULTS OF THE SURGICAL TREATMENT OF CANCER OF THE STOMACH.

BY R. H. FITZ, M.D., BOSTON.

MALIGNANT disease produces such a variety of suffering according to the nature and seat of the disease, its duration, the personality and surroundings of the patient, that I shall limit myself solely to the question of the humane treatment of the latter stages of recognized malignant disease involving the stomach.

It is assumed that the diagnosis is clear, the prognosis certain, and that the question relates simply to the use of medical or surgical methods to make dying as free from suffering as possible.

Three years ago I made an inquiry into the degree and duration of any relief which may have resulted from the surgical treatment of cancer of the stomach at the Massachusetts General Hospital during a given period of years. The evidence obtained offered grave doubts as to any considerable benefit from the operations in question in this vicinity during that period. The possibility of a more encouraging outlook was admitted, but it was hoped that fewer operations might become necessary for diagnosis and that more might be followed by relief.

In the series tabulated by me were fourteen operations for cancer of the stomach. "These included four gastrostomies, all the patients, with the exception of one not heard from, dying within two months, and four pylorectomies, one of which was not heard from, two died within the first month after the operation, and the fourth was relieved for several months. At the end of six or eight months, however, the last patient began to fail and died at the end of a year and a half. Of the six gastro-enterostomies, four died within seventeen days, one received no relief whatsoever and after twelve weeks of terrible suffering passed away." The sixth felt quite well for about two months after the operation. He was then confined to the bed for the greater part of the time and "suffered untold agony" till his death nine months later. Thus 64% of these patients operated upon for cancer of the stomach died within two months, and two thirds of the cases of gastro-enterostomy died within seventeen days after the operation.

These were the early days of gastro-intestinal surgery in this region, and it was neither to be expected nor to be desired that the zeal of the surgeon should be checked by such a presentation, especially since a lower operative mortality had been obtained elsewhere, although the degree and duration of the relief were not so definitely stated.

The recent communication of Dr. J. C. Munro to the Massachusetts Medical Society, therefore, is an important contribution to the subject in question. It presents a large amount of valuable material without attempt at selection, gives sufficient data to enable certain comparisons to be made and thus enables his experience to serve as a guide for others.

An exploratory laparotomy was performed in thirty-one cases of malignant disease involving the stomach, obviously with the purpose of affording relief should the conditions prove favorable, since the diagnosis must have been sufficiently clear from the evidence presented.

In ten of the cases no further operation was warranted. Two of these patients died within two days after the operation and two more within the subsequent twelve days. One patient died after some weeks, another lived two months, while the subsequent history of the remaining four is not given.

It may be interpreting the given facts incor-

* Read at a meeting of the Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society, Oct. 7, 1904.

rectly, but I read that the patient who lived two weeks was relieved of pain before the operation by soft food. The patient who lived some weeks so improved before the operation under rectal feeding that he was able to take a fair amount of nourishment by the mouth. The immediate mortality of the exploratory operation in these cases seems to have been from 20% to 40%, surgery gave no relief and all the cases whose subsequent history is given were dead within two months after the exploration.

From the series of twenty-two cases of exploratory laparotomy with additional operative procedure one may be withdrawn as apparently representing the effects of carbolic acid poisoning. Of the remaining twenty-one, eight died within a fortnight after the operation, one seventeen days after, another several days later, another shortly after, another five weeks after and another several weeks later. One died after three and one-half months and another after several months. One is reported in excellent condition several weeks later, another is comfortable five months after the operation, another has relief for nine months and another is in good condition and hard at work at the end of a year, while of two, the subsequent history is unknown.

The operative mortality in this series of cases evidently is high, for eleven of the patients appear to have died within the month following the operation and five within four days after it. There may be a difference of opinion as to what shall be called the operative mortality, but the fact is significant that at least one half of the patients died within the month following the operation. In this series were eighteen cases of anastomosis. Eight of them died within two weeks, a mortality of 44%; one died at the end of five weeks with relief for two weeks only. On the other hand one patient was relieved for several months, another for nine months, and another was in good condition and hard at work a year after the operation.

The above-mentioned facts may be tabulated as follows for the sake of ready comparison and inference:

From records of the Massachusetts General Hospital between 1890 and 1900:

No. of patients heard from			12
Deaths within 2 months			9
Lived	3	"	1
"	11	"	1
"	18	"	1
No. of patients not heard from			2

From Dr. Munro's communication to the Massachusetts Medical Society, June, 1904:

No. of patients heard from					25
Deaths within 2 months					19
Lived 3½ months					1
Lived several months					1
Alive and comfortable several months later					1
"	"	"	5 months later		1
"	"	"	9	" "	1
"	"	"	12	" "	1
No. of patients not heard from					6

Hence of the 37 patients subsequently heard from, 28 died within two months after operation and only one is stated to have been in good condition at the end of twelve months. Equally good, if not better, results are known to follow the medical treatment of such cases.

It would appear from this experience that merely exploratory operations in advanced malignant disease involving the stomach have a considerable mortality, afford no relief and are followed by an early death.

That explorations in such advanced cases followed by operations intended to relieve symptoms have a high mortality, and that in the survivors, relief is inconstant though sometimes prolonged at least a year.

It may be admitted that the surgical treatment of advanced cases of malignant disease of the stomach is humane because it sometimes gives more or less prolonged relief, and often shortens the period of suffering even if it gives no considerable relief.

On the other hand, the treatment of such cases by other than surgical methods often gives more or less prolonged relief and usually makes dying easy.

It may be more humane to treat every case surgically, what ever its condition at the time, or to administer a lethal dose to an incurable and suffering patient. Should the choice lie between the two methods, the latter has certain advantages in its favor.

A NEW METHOD OF PERFORMING GASTRO-ENTEROSTOMY.*

BY ALFRED H. GOULD, M.D., BOSTON,

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THE operation of gastro-enterostomy has been found, clinically, to give relief to a large number of cases of ulcer of the stomach. Several theories have been advanced to explain the success of this operation, the most noteworthy of which is founded upon the assumption that the artificial drainage into the intestine will side-track the food and prevent it from passing over the ulcer on its way to the pylorus. This drainage might occur, (1) by mere gravity, (2) under the influence of the contractions of the stomach. Experimental observations have apparently proven that drainage by gravity is regulated, largely, by the intra-abdominal tension. The great difficulties which stand in the way of accurately determining the relative tensions of these two organs has led to a disregard of the results reported. On the other hand, the muscular action of the stomach is better understood. The peristaltic waves converge at the pylorus [1] and, if this opening be patent, it is to be presumed that food will prefer the natural to the artificial outlet. Side-tracking of the gastric contents, under these conditions, cannot wholly explain the abatement of symptoms because the food must still pass

* Fourth paper of series.

[1] Cannon: Am. Jour. of Physiology, Vol. i, 1898.

over the ulcer as it travels toward the pylorus. Nevertheless, any physiological deductions upon the action of the stomach, in the presence of a gastro-enterostomy, are incomplete unless they take into consideration the mechanical effect of an ulcer upon the normal stomach peristalsis. Although there is no experimental proof, there is every reason to believe that the presence of an ulcer upon one of its walls must interfere with the peristaltic action of the stomach. Whether this interference results from reflex spasm, caused by the irritation of food; by the splint-like action of the wide infiltration which surrounds the ulcer, or by adhesions to the stomach bed, it will be seen that the free play of the peristaltic waves must be markedly impeded.

The most serious early complication of a gastro-enterostomy is the so-called "circular vomiting," a condition which gets its name from the assumption that the return of the bile and the food into the stomach is injurious. As a matter of fact, it has been shown (Maase and Chlumsky) that the chemical action of the bile in the stomach merely amounts to an early neutralization of the gastric contents, and does not upset the process of digestion. On the contrary, Oxner and Mayo have called attention to the fact that, although bile may do no physiological harm in the stomach, it occasionally gives the patient great discomfort from bitter eructations.

After a simple gastro-enterostomy, in the presence of an open pylorus, the food passes through the duodenum and proximal coil of the jejunum, until it reaches the artificial stomach opening. Here it is seized by the stomach peristalsis and again thrust through the pylorus, after which, it starts around the circuit anew. It is probable that this cycle repeats itself over and over again after a simple gastro-enterostomy, while a certain amount of food finds its way continually out of the distal coil. During the past two years I have used, for purposes of experimentation upon the gastro-enterostomy, 120 animals, 80 of which were dogs, and 40 cats. Twenty cats and 20 dogs, were allowed to live, while the remaining animals were employed to perfect personal technic in every detail of the various operations for gastro-enterostomy. I have, therefore, been able to follow 40 operations for gastro-enterostomy for periods varying from a few hours to one year, and have examined the results of these operations both during life (with the animal under an anesthetic) and after death. The general results of these experiments will not be reported here; but many interesting facts have been brought to light which bear upon circular vomiting. The first fact to draw attention to the independence of the two coils of the gastro-enterostomy was brought out in an animal in which the intestine had been attached in such a manner that its peristalsis travelled in a direction opposite to that of the stomach. This cat suffered no inconvenience whatever, and ate her food with relish. Although the wave ran in continuity across the hole, from one coil to the other, it was perfectly evident that the jejunum must lose its grip on the food at the opening, whether the stomach were in motion or not. In this and other cases the intestinal peristalsis seemed to travel at a much greater speed than that of the stomach, and a coöperation of the two appeared impossible.

In experimenting upon the Harrington ring[2] it was found that, after falling apart, the segments were seized by the stomach and driven through the pylorus, although mere gravity would have drawn them down into the jejunum. It is practically certain, therefore, in a simple gastro-enterostomy, that the two coils are as independent of each other as if they were implanted into different portions of the stomach wall, and that while food is going the circuit of pylorus, duodenum, and proximal coil of the jejunum, it is gradually escaping into the distal coil of the jejunum.

The small caliber of the cat's intestine lays it open to obstruction by adhesions, and a very slight kink may so constrict the lumen that it will result fatally. For this reason it was possible to study every sort of obstruction which occurs at the site of a gastro-enterostomy, and watch the symptoms. Only the obvious symptoms could be identified, but abdominal cramps and vomiting were noted in every case of obstruction.

Starting with the idea that circular vomiting was always associated with a distended duodenum and frequently with obstruction of the proximal coil, it was very impressive to note the great irritability of the stomach, caused reflexly, by kinks and bands at the site of operation. This was most frequently seen during the first three days, although it was once found six weeks after the operation. As soon as the fatal nature of the cramps and the vomiting was recognized, the animals were always killed to avoid suffering as soon as these symptoms appeared.

The kinks were found to be of three general types: (1) Adhesion of the proximal and distal coils in such a manner that the patch of jejunum at the opening pouted into the stomach and acted like a valve to the opening of the distal coil; (2) lateral kinks, so that the line of suture became folded upon itself, sidewise; (3) adhesion to the great omentum or to the surrounding organs. The first two varieties were the most common, but many different combinations occurred. In all cases the invariable symptoms were continued, vomiting, usually attended by cramps. Since every animal refused food from the moment the gastric irritibility began, the dilatation of the stomach and the duodenum played no part in causing the symptoms. In fact the stomach was always found to be empty at autopsy. Circular vomiting, in these animals, was, therefore, associated with post-operative accidents, and gastric irritability was found to be frequently caused by kinks and bands which did not cause complete obstruction. In the cases in which complete obstruction was apparently present, the vomiting continued until death, irrespective of the quantity of food within the stomach.

[2] Annals of Surgery, November, 1904.

Out of the 40 animals in which gastro-enterostomy was performed, 6 died with symptoms of circular vomiting, all of which were cats.

Class 1. Three cats, died in twenty-four hours, forty-eight hours; seventy-two hours.

Class 2. Three cats, died in four days; seventeen days; six weeks.

In none of these cats were adhesions to the surrounding organs found to be the sole cause of the obstruction (class 3) but such adhesions were found in nearly every case and, occasionally, contributed to exaggerate the lesion.

The first modifications of the old gastro-enterostomy were devised to prevent the bile from entering the stomach. The Y operation of Roux is the most effective of these, and furnishes the principle upon which the later operations have been developed. Wolfer's procedure of joining the proximal and the distal coils of the jejunum by a simple anastomosis has been very successful, because it allows the intestinal contents to enter the distal coil, without necessarily entering the stomach. However, Chaput, Doyen, Fowler, Scott, Mattoli, have all devised expedients to divert the stream of food directly from the proximal into the distal coil by constructing an artificial obstruction in the proximal coil just beyond the opening of the entero-enterostomy. The advantages of this scheme are many, so far as immediate results go, but they leave the patient exposed to the serious danger of a jejunal ulcer from erosion by the gastric juice. The percentage of cases in which a jejunal ulcer results from a gastro-enterostomy is not known, for it is not a frequent complication. Robson has collected 16 cases of peptic jejunal ulcer.[3] In Mikulicz's clinic 2 cases occurred out of 160 gastro-enterostomies. One year ago, I performed a gastro-enterostomy upon a cat, without an entero-enterostomy. The cat was perfectly well for six months, after which it began to lose appetite, weight and strength. She was carefully fed, and housed out of doors in a comfortable cage with evident improvement in her condition, but, despite all treatment, she began again to lose ground, and died four months later, or ten months after operation. No cramps or vomiting were noted at any time. At the autopsy, the opening showed no sign of shrinking, but a large punched-out ulcer covered one-half of the jejunal patch nearly surrounding the opening of the proximal coil. Of the two mates of this cat, which were operated upon the same day, and in the same manner, one is healthy in every particular, while the other died eleven months after operation without known cause. This case is cited to show that a jejunal ulcer may result after a gastro-enterostomy, despite the neutralizing effect of the bile, which, in this instance, was returned into the stomach entire.

The ultimate success of a gastro-enterostomy is always in doubt, because of the well-known tendency of the artificial opening to close, when the pyloric outlet is open. Many expedients have been devised to ensure a permanent opening, the simplest of which is to make the opening between the stomach and the intestine a very large one. It has been found, clinically, that the size of the hole has very little to do with its subsequent closure, and, since a large hole frequently leads to kink-formation, its use has been abandoned. It has been noticed (Kelling and others) that when the pylorus is wholly obstructed, the artificial opening shows little or no tendency to close. This has led to the mechanical closure of the pylorus, by resection or otherwise, and is now regarded as the only certain method of providing a permanent artificial opening between the stomach and the intestine. It is the belief of the writer that the artificial closure of the pylorus will be discontinued, because it violates sound physiological principles. It has been proven, experimentally, that the discharge of bile and pancreatic juice is stimulated by the irritation of the papilla of Vater by acid food.[4] This incident is one of the most important factors in the process of digestion, because it secures the discharge of a large amount of bile and pancreatic juice at exactly the right time. If the pylorus be wholly obstructed, the discharge of bile in twenty-four hours will probably be approximately the same as when the food passes the papilla, but the discharge of bile will have no direct relation to meals, and will occur independently in response to periodic contractions of the gall bladder. Reasoning from the data stated above, I have devised an operation for gastro-enterostomy which is founded upon the following principles:

(1) That the pylorus should never be closed, merely to ensure the patency of the artificial opening.

(2) That the gastro-enterostomy opening should be so constructed that it will remain open of itself.

(3) That an entero-enterostomy should be performed between the proximal and the distal coils of the jejunum.

(4) That as much as possible of the food should be prevented from entering the stomach, without entirely cutting off the jejunal patch from the protection of the bile against the eroding effect of the gastric juice. This is accomplished by placing a constriction in the proximal coil.

TECHNIC OF NEW POSTERIOR GASTRO-ENTEROSTOMY.

The stomach is delivered, and the greater omentum and the transverse colon turned over the epigastrium so as to expose the posterior wall of the stomach in the usual way. The meso-colon is torn through, with a blunt instrument, for a distance of about two and a half inches, in a direction parallel with the blood vessels, and opposite the lowermost point of the greater curvature. The placing of the stomach clamp is the first divergence from Moynihan's technic. This surgeon applies the clamp nearly parallel to the greater curvature, but pointing toward the fundus of the stomach. This is supposed to

[3] Annals of Surgery, August, 1904.

[4] Kelling: Archiv. fur Klin. Chir., 1900, Vol. lxii.

leave the jejunum in more natural relations than if the anastomosis were made exactly parallel to the greater curvature. That this fine distinction is of no practical importance whatever, so long as the proximal jejunal coil is long enough, has been shown repeatedly in animals, where the jejunum is pulled out of its natural bed and fastened up to the stomach without the slightest ill effects. If an entero-enterostomy is performed below the gastro-enterostomy, it is imperative that the stomach incision be made parallel to the greater curvature because the relations are changed by the drag on the anastomosis by the attached coils, and an acute bend of the proximal coil will result if the stomach incision slants toward the fundus. In this operation, therefore, the Moynihan incision has been disregarded and a line parallel to the greater curvature has been adopted as the final direction of the incision.

The stomach clamp is first applied at a right angle to the greater curvature, taking up a fold about three and a half inches in length, and leaving a margin of one inch between the end of the fold and the greater curvature. This locates the clamp parallel with the vessels on the stomach wall. The incision into this fold is made in the usual way, removing the redundant mucous membrane with scissors. The edges of the stomach incision are now seized with forceps, at points midway between the two angles, pulled apart, and lifted by an assistant while the operator loosens the clamp. When an assistant has pulled the middle points of the stomach incision as far apart as possible, a new incision will result which is parallel to the greater curvature. The stomach clamp is again put on while the edges are held in their new relations, leaving a good margin of free edge for subsequent sewing. The ends of the incision, as originally made, will now be placed in the middle, and will have a tendency to sag unless clamped tightly. The jejunum is now brought out and a longitudinal fold, three inches long, is clamped about ten inches from the beginning of the jejunum. The first sero-muscular stitch is next placed; but, owing to the somewhat irregular line of the cut edges, the line of suture on the stomach is bent to correspond, as shown by the dotted line on the drawing. The suture-line on the jejunum is straight, as the duodenal incision is made in the usual manner. Each end of the continuous stitch is left long for future use. The jejunum is opened at a point opposite the middle of the stomach incision, and enlarged a short distance either way. It is better not to attempt to make the lengths of the two incisions fit each other, at first; but the jejunal cut should be lengthened, little by little, until the corners of the stomach and jejunal openings are exactly matched. The cut edges are sewed together with a No. 0, chromic continuous stitch, which starts in the middle of the incision, half way between the two corners, and goes outward to the corners, on either side. The reasons for not adopting the usual method of starting at one angle of the wound and sewing directly across the base, are two: (1) to allow the jejunal incision to be enlarged gradually, until it exactly fits the stomach cut; (2) a much more secure joint at the corners can be made if the suture is continuous, instead of being knotted at the angle of the wound, in the old way. When it is remembered that the stomach opening cannot be further enlarged, on account of its new position, the danger of making too long a cut into the jejunum will be apparent. The continuous stitch is, therefore, tied in the middle, to leave two long ends for sewing, and the first half of the base sewed together, the jejunal incision being enlarged just ahead of the needle. The first corner is now turned, and the thread tied. It is important not to carry the first part of the stitch farther than the first corner, else the base-line (made up of the inner lips of the stomach and the jejunal incisions) will be buried and the operator must work in a pocket. The second half of the base-line is sewed together from the middle outwards, with the end left on the first knot exactly in the same manner as the first half, except that, after turning the corner, the stitch is carried over the front and tied to the end left at the first corner. This is a satisfactory method of placing the inner layer of stitches for any gastro-enterostomy, because it makes a perfectly firm and accurate approximation at both corners. At this point the clamps are removed, and the rough edges on the front of the suture are buried with a continuous sero-muscular stitch. The long end left by the first sero-muscular stitch is commonly used for this stitch over the front. An interrupted sero-muscular stitch is placed at either angle of the anastomosis, about one-quarter of an inch away, as an extra support. The edges of the incised meso-colon are finally caught down, with interrupted stitches, to the stomach, around the anastomosis.

The second step, in the usual gastro-enterostomy technic, is to perform an entero-enterostomy between the proximal and the distal coils of the jejunum. In this case, however, owing to the peculiarity of the obstruction to be made in the proximal coil, it is better to complete the valve before making the entero-enterostomy. The obstruction of the proximal coil is commonly done in one of three ways:

(1) By constriction with silver wire (Fowler); (2) by longitudinal inversion of coil by sutures (Scott, Mattoli); (3) by actual resection of the proximal coil between the two openings (Doyen, Chaput). The third method cuts off all bile from the stomach, and for this reason is not desirable. The second method has not always been found to be permanent, while the first leaves a foreign body within the abdomen. I have found that a very successful, and up to the present, permanent, valve may be formed by inverting the intestine transversely, instead of longitudinally. This technic requires three or more layers of sutures: the first are interrupted mattress stitches, placed around the circumference of the gut as if an end-to-end suture had been made. This rolls in the bowel circumference

and forms a circular constriction. The interrupted stitches are followed by two layers of continuous stitches, which turn in still more of the bowel, and thus make a strong diaphragm across the lumen. By this procedure the proximal coil is shortened by about ¾ of an inch, and for this reason, it should be done before making the lateral intestinal anastomosis. The site of this valve should be about 3½ inches below the gastro-enterostomy. A lateral anastomosis is now made, about one inch below the valve, using clamps and suture, just as in an ordinary gastro-enterostomy. Before closing the anastomosis, the clamp, which is placed on the proximal coil, is removed and a blunt instrument introduced upward into the coil to ascertain whether the artificial diaphragm is wide

FIG. 1. Shows position of the incision at a right angle to the greater curvature.

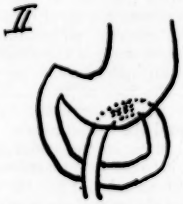

FIG. 2. Shows the stomach incision pulled out parallel to the greater curvature, and side by side with the jejunal incision.

FIG. 3. Shows diamond-shaped opening resulting from this method of sewing the stomach to the jejunum. Also note the situation of valve in the proximal coil.

enough to obstruct the lumen. If the inturned edge is found to be too scanty, another continuous stitch is placed around the bowel until exactly the proper amount of obstruction has been made. The entero-enterostomy is then completed, and the abdomen closed. The apparent objection to such a diaphragm is, that it may flap back and forth without really opposing the advance of the food through the proximal coil. This has not been found to be the case if enough of the bowel wall is turned in. A good rule is to turn just enough to allow the introduction of the end of an artery forceps, and no more.

A glance at the diagrams will make clear that, by sewing the stomach to the jejunum in this manner, the posterior wall of the stomach is narrowed transversely. As soon as the stomach falls back into its bed, the incision will tend to assume its original position at right angles to the greater curvature. The edges of the jejunal opening would be pulled wide apart, except for the fact that the middle of the stomach incision is dragged back, on either side, by the longitudinal pull of the jejunum, and the greater the distention of the stomach the greater will be the counter pull of the jejunum.

This operation has been done by me upon 11 cats, 6 dogs, and 1 man. It is reported without knowing the final results. The cat experiments are of no value to prove the permanent character of the opening, because these animals were killed too early. They were used for purposes of technic and for study of the behavior of the artificial opening, under the influence of peristalsis. Of the 6 dogs, one died of influenza, 3 weeks after operation; one died while in apparent good health, six weeks after operation; a third was killed four months after operation. In none of these animals had the opening shown any sign of contracting or any evidence of kink formation, or leakage. The remaining three dogs are now alive and in perfect health at, respectively, thirty-eight weeks, twenty-six weeks and twenty-one weeks after operation.

ANIMAL EXPERIMENTS.

Animal.	Lived after Operation.	Condition of Anastomosis.
Cat 1.	15 hours.	Tight.
" 2.	24 "	"
" 3.	24 "	"
" 4.	3 days.	"
" 5.	4 "	"
" 6.	7 "	"
" 7.	16 "	"
" 8.	17 "	"
" 9.	21 "	"
" 10.	28 "	"
" 11.	39 "	"
Dog 1.	3 weeks.	Tight, no contraction; died of influenza.
" 2.	6 "	Tight, no contraction; died, cause of death not found.
" 3.	16 "	Tight, no contraction; killed.
" 4.	21 "	" " " still alive.
" 5.	26 "	" " " " "
" 6.	38 "	" " " " "

REPORT OF CASES.

G. H. W., thirty-nine, married, laborer.

For an indefinite number of years the patient had suffered from recurring attacks of mild indigestion, characterized by distress after eating, and occasional nausea. These symptoms in no way prevented his

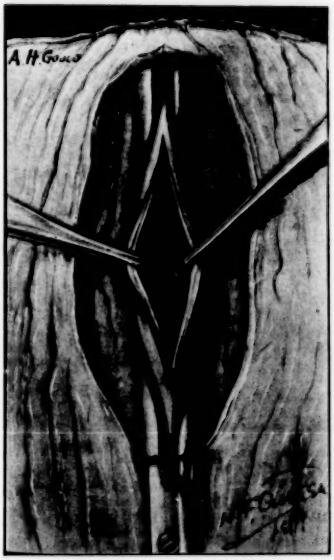

FIG. 4. The stomach has been turned over, thus exposing its posterior wall, which is approached through opening in meso-colon. Note that the incision into the stomach is parallel with the blood vessels, and nearly at right angles with the greater curvature. Note, also, that forceps are picking up the middle of the cut edges, preparatory to drawing them out parallel to the greater curvature.

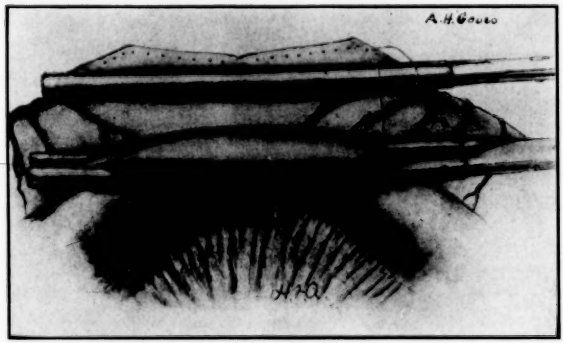

FIG. 5. Stomach incision clamped at a right angle to its original position. Dotted lines show path of sero-muscular stitch.

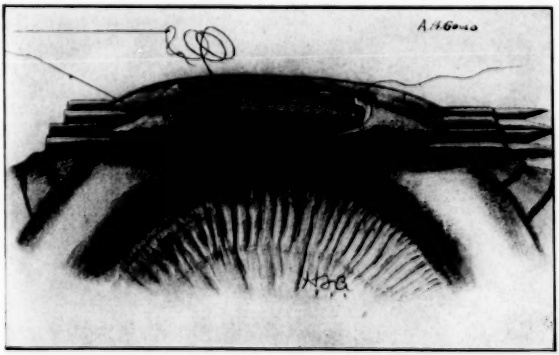

FIG. 6. The jejunum and the stomach are held together by clamps and first sero-muscular stitch. Note method of beginning the through and through stitch in the middle of inner edges. The thread has crossed half of base and has closed in one corner, after which it goes over the front.

working, until one and a half years ago. At this time, he was taken suddenly with faintness, "bloating" and nausea, made worse by eating, but never accompanied by pain, tenderness, or loss of appetite. The natural neurasthenic tendency of the man became much exaggerated by the condition of the stomach, until he found that any attempts at work brought on such severe dizziness and faintness that he soon stopped work and devoted his whole time to the care of his health. For several months, succeeding his first definite attack, the patient suffered, more or less constantly, from nausea after eating, sometimes followed by vomiting, which was, rarely, bloody. He placed himself under the care of Dr. Arthur Mitchell, of Medfield, and followed out a careful system of medical treatment. Although a certain amount of improvement resulted, the case was thought to be of too chronic a type to offer hope of a permanent cure by purely medical means. The patient was sent by Dr. Mitchell to Dr. E. P. Joslin and was kept under observation for one month. After analysis of the gastric contents and consideration of the symptoms, a diagnosis of chronic gastric ulcer was made. In view of the rapid loss of weight (thirteen pounds) which had taken place during the last month, Dr. Joslin advised immediate operation, while the patient was still in good condition.

The man was found to be fairly well nourished. The abdominal examination gave no evidence of gastric dilatation, or of pyloric stenosis. No mass nor tenderness discovered.

At operation the pylorus was found to be patent, and the stomach of normal size, the lower border reaching to one finger's breadth above the umbilicus. There were no scars visible upon the stomach walls, nor any definite inflammatory thickening. No glands were seen on either curvature. The meso-colon was firmly adherent to the posterior wall of the stomach and a good amount of dark blood was found in the stomach. As nothing could be gained by prolonged search for the lesion, a posterior gastro-enterostomy was performed after the manner described above, without, however, adding an entero-enterostomy. The gall bladder, pancreas, liver and kidneys were examined and found to be apparently normal. The patient had a somewhat tedious convalescence on account of his low nervous condition. His wound healed by first intention; but the faintness and nausea became much worse than they had ever been. He was fed with nutritive enemata for about one week, after which cautious resumption of mouth feeding was tried. For one month after operation the nausea, faintness and occasional vomiting persisted, whereupon the patient began gradually to improve. He spent the summer in the country and gained rapidly in strength, though his nervous symptoms were intractable. At the end of three months the faintness and nausea had disappeared, allowing an extension in the diet. Occasionally he has bitter eructations after he has eaten too heartily. He is able to do the heaviest sort of laboring work without a sign of weakness. In general, it may be said that the six months of convalescence, which has succeeded this gastro-enterostomy, has been marked by no sequelæ that might not have accompanied the old operation.

A careful search through the literature has disclosed no previous case in which this operation has been performed; but the literature on the subject of gastro-enterostomy is so voluminous that an oversight would not be surprising. However, the writer feels no hesitancy in reporting the technic as original since it was worked out entirely independently of outside suggestions.

Thanks are due to Doctors G. D'Amezaga, R. Dexter and O. E. Wasgatt for their kindness in assisting in the experiments.

POINTS PERTAINING TO THE MANAGEMENT OF DIABETIC AND NON-DIABETIC GLYCOSURIA.*

BY HEINRICH STERN, M.D., NEW YORK.

The management of the glycosuric symptom of disease is by no means as simple as some authors would like to have us believe. To treat one case like the other is *a priori* irrational on account of the varied etiology. Furthermore, even if the result of analogous factors, the individuality of each and every patient has to be taken into account, probably to a greater extent than in the treatment of any other pathological symptom. The treatment of any type of glycosuria has to conform in the first instance with the treatment of the underlying disease, if recognizable and possible. If the causative factors cannot be determined, or if treatment of these factors avails nothing or little as regards the improvement of the specific symptom as well as that of concomitant phenomena, the individual should be treated rather than the symptom *per se*. Hence the iron-clad dietary rules for the treatment of diabetes, for instance, should be only adhered to if they synchronously, with the diminution or cessation of the glycosuria, effect general improvement of the patient and tend to increase, or even but to maintain, the absolute body weight.

For my subject to-night I have selected some of the points fundamental in the discriminating treatment of the glycosuric symptom of disease. To the greater part, they are the fruit of a very large personal experience with the management of glycosurics. For a more detailed account of the matter I have to refer to a number of my earlier writings on which are based the following remarks:

(1) DIABETIC AND NON-DIABETIC GLYCOSURIA.

Glycosuria is not a specific symptom of diabetes alone, but it is a frequent phenomenon in a variety of a number of well-defined disorders. Glycosuria may appear after injury or removal of certain organs. It seems even that glycosuria will supervene in many instances in which certain vital organs have been seriously affected, but in which the organism survives for a time. It may occur after injection of adrenalin, after ether and chloroform anesthesia, after administration of substances like phloridzin, chloral, mercuric bichloride, morphine, strychnine, amyl-nitrite, curare, thyroid preparations, etc.; after inhalation of carbon monoxide; after the excessive use of tobacco and alcoholic beverages; during the luetic process and during or after infectious diseases.

The glycosuric symptom of disease appears and subsides, as its causative factors supervene or disappear. It may, therefore, exhibit a transi-

* Read at the meeting of the Lynn Medical Fraternity, a Nahant, Mass., June 30, 1904.

tory character or one of a certain degree of chronicity.

On the other hand, as first pointed out by me in 1897,[1] that what we designate as diabetes mellitus is but the second stage of a process of systemic deterioration, that there is a preglycosuric stage of the affection, that the glycosuria is nothing more than the most prominent phenomenon of the second stage of the deterioration, and that the severity of the diabetic state does not depend upon the intensity of the concomitant glycosuria.

Apart from the dissimilarity of the clinical pictures of true diabetes and that disturbance of which it forms an integral part, non-diabetic glycosuria, as shown by me,[2, 3] differs from the diabetic type in the following respects:

	Nondiabetic Glycosuria	*Diabetic Glycosuria*
Cause.	Demonstrable in most instances.	Unknown.
Duration.	Depending upon nature and degree of underlying factors.	Chronic.
Degree of intensity (uninfluenced).	Mild, urinary glucose usually less than 1%.	Higher, Urinary glucose from 1% upward.
Amount of urine (uninfluenced).	Normal, or but slightly (temporarily) increased.	Markedly increased (permanently).
Nitrogen excreted by urine (uninfluenced.)	Normal ratio.	Increased.
Influence of antidiabetic regimen.	Frequently none or limited. Gerhardt's reaction always negative.	Always. Gerhardt's reaction occasionally positive.
Influence of measures directed toward removal or modification of (known) etiologic substrata	Frequently positive: cessation or decrease	

The clinical discrimination between the diabetic and non-diabetic forms of glycosuria is not a very difficult matter, if we bear in mind that, apart from the above classified divergent points of the two general types of glycosuria, the classic symptom complex of diabetes, including the increased nitrogen metabolism, as described by me on a former occasion,[4] is either totally absent, or only partly present in the non-diabetic condition accompanied by glycosuria, and if we likewise remember the fact that in the greater percentage of cases a demonstrable cause stands at the foundation of non-diabetic glycosuria.

By the aid of these discrepant factors, the presence of diabetic and non-diabetic glycosuria in the same person may be demonstrated.[3] In cases where simple glycosuria is superseded by well-authenticated diabetes, the occurrence of both types of melituria is not simultaneous. Here occurs a successive manifestation of both types, so that one of them would only firmly and permanently establish itself, after the other has abandoned its hold upon the patient. Cases of this description, however, cannot be classified under the head of "duplex melituria," a term by which I have designated the synchronous or alternate occurrence of diabetic and non-diabetic glycosuria. The alternate prominence of one set of symptoms, including the respective glycosuria, is, therefore, the crucial point by which to recognize the occurrence of duplex melituria.

(2) PROPHYLACTIC TREATMENT OF GLYCOSURIA AND DIABETES.

The various types of glycosuria may be prevented, or their occurrence may be postponed, much in the same manner as other symptoms of disease, or the diseases themselves are warded off, or are intercepted. In individuals with a neurotic tendency, aforementioned glycosuria-producing drugs, if at all, should be but sparingly employed. I have found it best not to utilize such medicines at all, if not modified by another medicament. Thyroid extract, for instance, a most active drug in certain diseases, should never be administered, unless attenuated as first devised by me,[5] *viz.:*

℞ Acid arsenious gr. 1-60 .001
Adonidin gr. 1-12 .005
Thyroid gland, dry powder gr. 2 .12
M. Ft. compressed tablet, No. i.

Patients affected with gastro-intestinal disease, with syphilis or gouty conditions, should remain under treatment until a decided amelioration of their state of health has ensued. It is my experience that glycosurias of the transitory, as well as of the chronic, types not infrequently supervene if timely and adequate treatment of afore-mentioned affections has been neglected.

Again, it is a well-known fact that diabetes is not only a racial but frequently a family disease. Whenever diabetes is recognized as a family affection, the amount of carbohydrates should be curtailed for those members of the family who are not as yet affected. A diabetic parent should endeavor to withhold from his offspring those articles of diet which he, himself, has cherished, or still cherishes. This should be especially the case in those instances in which the parental diabetes is the one following obesity. Polysarcia, followed by glycosuria, may be nothing else but a masked form of diabetes. The surplus of non-oxydized carbohydrate ingesta is first stored in the form of fat and finally excreted in the form of glucose.

As a matter of course, the carbohydrate ingesta should not be entirely withheld from the individual predisposed to diabetes, but they must be reduced to a moderate quantity. I find that such individuals get along very nicely with from 1.5 to 2.5 gms. of carbohydrate for each kilogram of body weight in the twenty-four hours. This means from 6.15 to 10.25 calories per day and kilogram of body weight, or if an individual has a body weight of 70 kilograms, from 430.5 to 717.5 calories. Besides the reduction of the carbohydrates, moderation should be exercised in other respects. Those predisposed to diabetes should abstain from malted beverages entirely. The stronger alcoholics should be partaken of, if at all, in small amounts only. Excesses in venery should be avoided; excitement of a preventable nature should be interdicted. Business

enterprises, scientific and other pursuits involving a great and incessant mental strain, should not be undertaken.

The mode of employment of the person predisposed to glycosuria is hence a factor not to be underestimated. Such individuals should not become locomotive drivers, for instance, an occupation which undoubtedly paves the way to conditions exhibiting glycosuria as one of their main symptoms. Such persons should also not be placed in the turmoil of business, the ups and downs of which favor the supervention of glycosuric conditions. Again, they should not enter the liquor and restaurant trade, as according to statistics published by me [6] a rather large percentage of those occupied in these trades are afflicted with a diabetic affection.

(3) DIFFERENTIAL TREATMENT OF DIABETIC AND NON-DIABETIC GLYCOSURIA.

Being able to recognize the clinical difference between the diabetic and non-diabetic types of glycosuria, we should attempt a different management for the amelioration of the respective glycosurias. While we can trace many instances of non-diabetic glycosuria to a direct or mediate factor, we cannot as yet assign a specific cause for diabetes proper. Non-diabetic glycosurias may hence be influenced by etiological treatment, that is by acting upon their known substrata, while the therapy of true diabetes on the very account of our meagre knowledge concerning its pathology, cannot help being of a more or less empiric nature. For these reasons the treatment of diabetes mellitus is chiefly dependent upon the question of diet. Partial or total elimination of both, glycosuria and the other characteristic symptoms, will nearly always follow upon the diminution or exclusion of carbohydrates from the nutriment. Non-diabetic glycosuria is likewise influenced by an abstention from starchy and saccharous material. Non-diabetic glycosuria, however, although never as intense as the diabetic type, will not respond as readily as the latter to the withdrawal of carbohydrate nourishment. It follows then that the majority of obstinate cases of glycosuria which do not yield to a non-farinaceous diet, are non-diabetic in character. To this class, especially, belong patients, except those in the last stage of diabetes, who exhibit a progressive bodily decline after having followed a strict anti-diabetic dietary.

The beneficial effects obtained by a rigid diet in diabetes and its concomitant glycosuria prompted its employment in glycosurias originating on a different basis. Excellent as this empiric method is in treating the diabetic state, it should not be indiscriminately adapted to all glycosurias regardless of their causative factors. This would not only be irrational, but sometimes even positively injurious. This will be plainly understood, if we remember that glycosuria is but an indication of many underlying causes, and that the latter must be influenced in order to bring about an amelioration of the symptom *per se*.

After all, must we try to suppress glycosuria when and wherever we encounter it? To this question I answer with a peremptory "*No.*" As long as the patient remains in a fair condition, interference with an eventual slight glycosuria does not seem justified. This is especially the case when we attempt to obliterate the glycosuria by dietary means — a procedure which, in instances of non-diabetic glycosurias, is undoubtedly a two-edged knife.

Withdrawal of carbohydrates for the reduction of glycosuria is primarily indicated in such cases which have arisen on an indisputable diabetic basis. The treatment of other types of glycosuria should be limited to that of the etiological factors.

(4) WHEN SHOULD DIETARY OR MEDICINAL TREATMENT, OR BOTH, BE INSTITUTED?

Indications for the Institution of Dietary Treatment Alone.[2]

All patients exhibiting the usual syndrome of diabetes mellitus, whose urine is free from acetone, diacetic and betaoxybutyric acids, should be subjected to strict dietary regulations until all the symptoms have completely subsided, or until all symptoms excepting glycosuria, which, in the meantime, has declined to less than 1%, have disappeared.

Indications for the Institution of Medicinal Treatment Alone.

(1) All cases systematically declining on the regulation of diet.

(2) All cases in which a long-continued rigid diet cannot effect complete cessation of the glycosuric symptom.

(3) All cases excreting less than 1% (or 15 grams per day) of glucose in which the patient suffers from some disorder, but does not exhibit the usual symptom-complex of diabetes mellitus.

(4) Such cases in which diet has brought about subsidence of diabetic phenomena, but in which continued mental excitement is liable to effect recurrence of glycosuria.

Indications for both Dietary and Medicinal Treatment.

(1) All cases in which a dietary as well as a specific hygienic treatment is indicated and in which the patient through circumstances is prevented from properly executing them.

(2) All cases exhibiting the syndrome of diabetes mellitus, but which, for reasons of an accompanying affection, like chronic nephritis, for instance, cannot be kept under a rigid anti-diabetic regime.

(5) MEDICINAL TREATMENT OF GLYCOSURIA.

The employment of medicines in combating the diabetic deterioration, as long as its true nature remains unknown, is nothing more than the crudest empiricism. Furthermore, no known medicament, at least in the mode in which we administer it at the present day, appears to exert

any influence in arresting the progressive tendency of this affection. Drug action should, therefore, be resorted to only in those cases of glycosuria, the foundation of which is determinable. By subduing the original cause, or by calling forth vicarious action, the drug may ultimately bring about the cessation of the glycosuric symptom. Remedies specifically influencing the substratum will frequently cause a diminution or termination of the glucose output. If the liver seems to stand at the foundation of the glycosuric phenomenon, the administration of the various alkalis, arsenical preparations, chionanthus virginica and remedies belonging to this class, may be employed to advantage; if a pathological condition of the gastro-intestinal tract is responsible for the glycosuria, antacids, antifermentatives, stomachics, etc., should be utilized in much the same manner as if the glycosuric condition did not exist; if syphilis is at the bottom of the phenomenon, medicines alleviating the syphilitic condition must be prescribed; if the glycosuria is neurogenous in character, the specific nervous lesion should be medicinally influenced. The nervous system, in fact, is the favorite medium through which medicaments for the "cure of diabetes" are generally made to act. Such are opium (morphine, codeine, heroin, dionin), the bromides, chloral hydrate, chloralamid, antipyrin, acetanilid, phenacetin, belladonna, strychnine, sycygium jambulanum, ergot, uranium nitrate, etc.

The nervous affection, together with its glycosuric phenomenon, is often relieved by remedies of this kind, especially where the output of glucose does not exceed 1%, or about 15 gms. a day, and where the patient is rather emaciated. These remedies should, however, be supplemented by dietary treatment in the case of well-fed or obese patients excreting more than 1% of grape sugar.

The poisonous and narcotic remedies, however, should only be used on exceptional occasions, as the nervous causes of glycosuria are of an exceedingly chronic character. Of the very large number of cases of chronic glycosuria which have come under my observation I do not think I have administered opium or its alkaloids or derivatives for the condition *per se* more than in 5%. Opium is only indicated in rapidly declining cases, when excessive cellular catabolism is to be checked. Its effect is to retard the intracellular processes, and, therefore, although it may have the desired effect in specific instances, it may often act unfavorably upon the vitality of the organs.

Opium seems to exhibit qualities in influencing the glycosuric symptom, which are not possessed by its alkaloids or derivatives, and the latter should, therefore, be discarded in these conditions. In efficacy codeine comes next to morphine, followed by heroin and dionin. I have not found the glycosuric phenomenon to be greatly influenced by the bromides or by chloral hydrate, although they afford some relief in certain nervous conditions. Of great merit is antipyrin, especially if a functional neurosis, as a consequence of acute infectious disease, has been instrumental in producing glycosuria. I have seen satisfactory results from the administration of belladonna, atropin or small doses of ergot, in the abatement of glycosuria following traumatic neuroses. Uranium nitrate has not, to my knowledge, been productive of any good in reducing the quantity of excreted glucose.

The most valuable agent for overcoming neurogenous glycosuria is undoubtedly sycygium jambulanum, which is obtainable in the shape of powdered jambul seeds or the fluid extract of jambul seeds. Either should be given in doses of .75 gm. three times a day, to be increased later to 10, 20 and even 30 gms. a day. I prescribe this remedy in the shape of pills or capsules containing a solid extract of jambul seeds, resembling in appearance and consistency the extract of aloes, and of which I have administered as much as 10 gms. a day.

From the effects displayed, I conclude that there are different qualities of jambul on the market, and if the drug obtained from one source is not productive of satisfactory results, it should be procured from another source. The administration of small doses of this drug may be continued for a long period, in fact it is best to continue it indefinitely, where there are obstinate cases of nervous conditions to deal with, and where the accompanying glycosuria is usually of a low degree, but tending to occasional exacerbations.

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(To be continued.)

THE BROWN TAIL MOTH ERUPTION.

BY HARVEY P. TOWLE, M.D.,

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IN 1897 information reached the State Board of Agriculture that an unknown insect was destroying vegetation on the border of Somerville and Cambridge. Investigation showed that it was the brown tail moth, a native of Europe. Further investigation seemed to indicate that the insect had been imported to this locality on some roses purchased in Holland by a Somerville florist. For a few years the area infested was comparatively small. During this time the spread of the insect was much limited by the efforts of the Gypsy Moth Commission. In 1900 the state refused to make further appropriations and the Commission was forced to give up its work. Since that time the infested area has increased rapidly, chiefly to the north of the original focus, reaching, according to a recent

report, as far as Nova Scotia (Frost). The district west of Somerville has suffered less than that to the north, the district south least of all. For some time the moth was known as an enemy to vegetation only. As the infested area increased however, and the moths became more and more numerous, the people of he district began to suffer in increasing numbers from an eruption which it is now recognized was due to the brown tail moth caterpillar. Although cases were numerous and although, as will be seen, the eruption was characteristic there has been almost no reference to it in the medical literature. It seems worth while, therefore, to call the attention of the medical profession to the moth and its menace to human comfort.

Every June in the cities and towns lying to the north and west of Boston occurred many cases of an eruption which was urticarial in character, itched intensely and affected chiefly the exposed parts. The prevalence of this eruption in the district infested by the brown tail moth, the time of its occurrence and its uniform character soon caused comment. In the Boston Medical and Surgical Journal for June 13, 1901, Dr. J. C. White published a letter in which he said that " he saw in the Out-Patient Department of the Massachusetts General Hospital many cases which were undoubtedly caused by a caterpillar. The dermatitis was of the same type in all cases and there was also a uniform history of the removal of caterpillars from the affected parts just preceding the eruption." In the issue of the same Journal for June 27, 1901, Dr. Edith Meek said that the eruption was due to hairs of the brown tail moth. Since these letters were published many cases of the eruption have come to the Skin Out-Patient Department of the Massachusetts Hospital, which were so typical that they were often described as "caterpillar rashes." The common history of these cases is as follows: The patient while out of doors felt something on his neck. He put up his hand and brushed away a caterpillar. A few hours later his neck began to itch. Red spots then appeared. These were few at first but soon became numerous. The itching increased in intensity with the increase in the eruption and in some cases became almost unbearable. In other cases the eruption appeared on the face and hands as well as on the neck and in some cases extended more or less over the chest and back. The lesions were round, elevated above the surface of the skin, firm, of a red color which disappeared on pressure and averaged in size a large pea. As a rule the lesions were discrete, but occasionally they were confluent and formed patches of varying sizes. The individual lesion lasted longer than the ordinary wheal, often persisting for many hours. The eruption itself lasted from several days to several weeks. Recurrences took place as often as there was exposure. There was no disturbance of the general health except secondarily. In subjects otherwise out of health the results of the intolerable itching and the consequent nervous strain were serious.

The following cases taken from the records of the Out-Patient Department of the Massachusetts General Hospital will illustrate the uniformity of history and type:

Case I. — Lives in Waltham. The previous day was bitten while sitting under a tree. An erruption on the neck followed. The case presented a large mass of urticarial lesions about the neck and extending somewhat down the back. Everywhere linear scratch marks. Eruption resembles that due to brown tail moth.

Case II. — Was walking in the country yesterday when a caterpillar landed on his neck. Itching began almost immediately and that night an eruption appeared. To-day presents a remarkable reddish eruption which encircles the entire neck and extends from the clavicle to chin. This area is dotted with very numerous hard, rounded lesions of the average size of a small pea. Here and there coalescence to form small patches.

Case III. — An urticaria of the neck of the caterpillar type. Appeared two days ago after an excursion to Wakefield.

Case IV. — Urticaria of the caterpillar type about the neck, most marked on the right. Some involvement of the arms. The eruption followed a visit to the country.

As has been indicated already, the exact cause of the eruption was not known definitely at first. The fact that the eruption was prevalent in the districts in which the brown tail and gypsy moths were abundant and that it was often preceded by the finding of a caterpillar on the affected part at once gave rise to the suspicion that it was due to the caterpillar of one or the other moth. The State Board of Agriculture soon demonstrated that the eruption was due to the caterpillar of the brown tail moth. They state that in spite of all the work their men have done among the gypsy moths they have never known a case to arise. Fernald and Kirkland have published, under the direction of the State Board of Agriculture, a very full and elaborate report on the brown tail moth which deals chiefly with the life history of the insect, its ravages, the means of extermination and, to a less degree, with the irritation it produces in the skin. I am indebted to this report for many of the following facts. The writers state that they soon found that the eruption was caused by certain very short, pointed hairs with barbs which occur in the brown tail moth caterpillar at the time of the third and fourth moltings. The caterpillar has also both long pointed hairs and branching hairs, but these do not cause the eruption. The short barbed hairs become dislodged from the caterpillar and lie upon the skin. If now they are rubbed the points enter the skin and each succeeding movement tends to drive them deeper because of the barbs. As a result of their irritation the characteristic itching eruption appears. An interesting experiment which Dr. Tyzzer performed upon himself some years ago confirms this view of the causative action of the minute barbed hairs. Dr. Tyzzer never published the results of this experiment. I am therefore obliged to quote from memory. As, however, I saw his work I think that the facts given are correct.

Dr. Tyzzer rubbed a brown tail moth caterpillar over the skin of his forearm. When the eruption appeared he excised a piece of skin and examined it microscopically. In the lesions he found these same minute barbed hairs beneath the epidermis.

The question had been raised as to whether these barbed hairs caused a purely mechanical irritation or whether it was caused by some poisonous substance as in the case of the sting of a bee. The Fernald-Kirkland report gives the results of chemical analysis made by Mr. F. J. Smith to determine the presence of such a poison. Various extracts were made from the hairs, cocoons and molted skins. The results were entirely negative. No poison was found. It was, however, noticed that unfiltered extracts caused an irritation of the skin in every case. On the other hand, extracts which had been filtered to remove the hairs did not irritate. The various experiments show, therefore, that the irritation is mechanical and not chemical.

A brief consideration of the life history of the brown tail moth will complete the evidence against the barbed hairs of its caterpillar. The caterpillar is hatched in late July. This caterpillar molts twice in this season and in September builds its nest and goes into winter quarters. When the warm weather comes again the caterpillar wakens into activity. In the latter part of May it molts for the third time and for the fourth time early in June. It is at this time — that of the third and fourth moltings — that the short barbed hairs are found. It is at this same time — June — that the eruption is prevalent.

From these few facts it will be seen that the short barbed hairs of the brown tail moth cause an eruption in human beings as a result of mechanical irritation which is typical in aspect, very annoying in character and one which in invalids or very sensitive people may be attended by serious consequences.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Concluded from No. 2, p. 49.)

SKIN GRAFTING BY DOUBLE TRANSPLANTATION.

STEINTHAL [22] reports a case in which he satisfactorily covered a large defect of the right popliteal space with a large skin flap transplanted from the left mammary region. The flap, rectangular, 17 cm. by 10 cm., was attached by one side to a wound along the anterior surface of the left leg which was strongly flexed on the abdomen. When healed in the position the pedicle connecting it with the chest was cut. The left leg was now extended and the flap thus brought into close proximity to the right leg was sutured to the granulating defect in the right popliteal space. After union to this new site, the attachment to the left leg was severed and the process completed. At first sight this seems a rather complicated procedure. But it certainly shows considerable ingenuity on the part of the operator. For the exact details of the case the reader is referred to the original article which gives a somewhat full description.

A METHOD OF TENDON SUTURE.

Most of the present methods require considerable time for their accomplishment since they require that the cut surfaces of the tendons should be brought into exact contact. Suter,[23] in a recent publication, claims that this is not necessary, but that a much firmer union can be obtained by another method, the principle of which has already been employed by Heveter. In his experience the union of the ends by a single loop of suture passed through the cut ends at some distance from the cut surfaces is insufficient because the suture is apt to tear the fibers apart. Suter, in a manner illustrated by diagrams, surrounds and compresses the tendon in its entire circumference so that it is perforated at four equidistant points. In this way he completely avoids the tearing apart of the tendon fibers. After both the ends of the severed tendon are thus sutured, the stumps are brought in contact by tying together the double threads of both. In his experience, the healing has been excellent. The slight shortening is of no practical importance. The advantages claimed are the short time required, the firmness of the suture, that it can be done without an assistant and the diminished danger of infection. Clinical histories of actual cases are published to confirm the practicability of this method of sutures.

TECHNIC OF NERVE SUTURE.

Foramitti,[24] following out the suggestions of Vanlair, has sought to use arteries obtained from animals to protect the point of suture from compression by connective tissue formation and to favor the union of the nerve fibers of the proximal with the peripheral stumps. For this purpose he recommends the arteries taken from freshly killed calves, which are hardened, prepared and kept ready for use. The arteries are taken from the animal under aseptic conditions, are washed in sterile salt solution and then drawn over the sutured nerve. Or the vessel is drawn over a glass rod or tube, hardened in a formalin solution, washed, sterilized and kept ready for use as animal ligature material is kept. These do not collapse under compression. Experiments with these tubes in animals show that after some weeks the nerve lies in the arterial tube and is not adherent to the surrounding tissues. The nerve sheath was only in places adherent to the intima of the artery by delicate adhesions. There were no signs of inflammatory reaction. The same result followed the use of both the fresh dissected and hardened arteries.

NERVE ANASTOMOSIS FOR FACIAL PARALYSIS.

W. Mintz (Moskow) reports a case in detail, where on account of complete paralysis of the left facial nerve, caused by injury to the nerve

during an operation for middle ear suppuration, he sutured the proximal end of the divided spinal accessory nerve to the distal end of the divided facial at the point where the latter enters the parotid. The immediate result was quite satisfactory. At the end of six months, in place of a complete facial paralysis, the patient shows a pariesis especially of the superior facial branches; secondary contractions and " tic "-like cramps in the region of the zygomatic muscles; slight degenerations, reaction and diminished galvanic excitability of the facial trunk. A detailed result of a complete examination of the patient is given in the writer's report of his case, a good summary of which has been published in the Zentralblatt f. Chir.[25]

This case added to Munch's series of facial nerve anastomosis makes a total of twenty-three, among which the results of Körte and Kennedy are the most striking. Of Munch's series the results are reported as negative in seven.

THE UNION OF UNUNITED FRACTURES OF THE NECK OF THE FEMUR BY OPEN OPERATION.

Freeman [26] states that in spite of the disability often accompanying ununited fractures of the femoral neck, the union of the fragments by open operation has attracted but little attention, although it is feasible and seems to give fairly good results. He states that the principal reason for this neglect is that the condition is usually encountered in old people with poor resisting powers, so that an operation of such magnitude would be accompanied by more danger than would be compensated for by the advantages gained. But to those younger and more vigorous and in whom the function of the limb is of paramount importance, this does not apply.

The author has been able to find the reports of but thirteen cases, his own making the fourteenth, and out of these fourteen cases the results are given in only ten.

He states that formerly the question of postoperative drainage was of so much importance that it led to the frequent choice of posterior incisions; but, now that more confidence exists in aseptic technic, preference can be given to the anterior incision, which seems to offer greater advantages. Access to the joint, even in heavy individuals, is adequate; no muscles or other structures of importance are divided or even endangered; the absence of a wound back of the trochanter lessens the risk of infection, and permits a cushion to be placed behind the bone in such a way as to prevent its dropping backward, a point of considerable importance; and, lastly, the situation of the wound facilitates the after-treatment, including the removal of stitches, without the necessity of painful and troublesome turning of the patient.

The cut should begin a short distance below and external to the anterior superior spinous process of the ilium and extend directly downward for three or four inches, the exact distance varying somewhat according to the thickness of the soft parts. It should lie just outside the sartorius muscle, which can be retracted inward, while the fascia lata is drawn outward. The dissection should be blunt as far as possible, especially at its lower extremity. Should the surgeon, during the course of the operation, conclude to remove the head of the bone instead of reuniting the fragments, he can do so through this incision quite as readily as through any other.

He states that in freshening of fragments all interposed connective tissue should be removed; this, owing to the narrowness of the working-space, may be quite difficult and accompanied by considerable oozing. The tissue is very tough, and cannot be scraped out, but must be cut away with scissors. Care must be taken to remove as little bone as possible in order to avoid shortening of the neck, and as a consequence, shortening of the entire limb, which is apt to be considerable in spite of all precautions. Troublesome oozing may be checked by the use of pressure-sponges wrung out of very hot water. Detached splinters of bone should be removed.

The author claims that simple extension, combined with trochanteric support, would be sufficient to secure union in many instances. He states, however, that it may, perhaps, be unwise to trust to extension alone, because other procedures are supposed to be more certain in their results. The principal one of these is the union of the fragments by means of nails, screws, or bone or ivory pegs, which may be inserted obliquely from the incision used in opening the joint, or more advantageously through a small separate opening over the external surface of the trochanter, which permits of better fixation and more easy removal. This method of holding the fragments is supposed to accomplish three things, fixation, coaptation, and stimulation of bone formation.

In speaking of the difficulty to secure thorough fixation by nails, pegs or screws, owing to the soft and porous condition of the upper end of the femur in many instances, the writer describes a simple and effective clamp devised by him which he has successfully employed in two cases of ununited fracture of the tibia. It consists of three or four long screws, which are inserted in a longitudinal line of holes drilled in the bone, their projecting ends being tightly held by two metal side-clamps lined with strips of wood. The efficiency of the apparatus lies in the fact that the screws bury themselves in the wood as firmly as if screwed into it. As regards the hip, it would make no difference at what vertical angle the upper screw projected from the bone, it could be easily adjusted and securely held. Such an apparatus, having its foundation two or three inches down the shaft of the femur, in solid bone, would certainly be more satisfactory than screws alone.

The screws should remain, if possible, for several weeks, until consolidation is well advanced, unless infection occur, when they should be taken out at once.

Temporary drainage is indicated, although

depending somewhat upon the amount of the oozing. The majority of operators placed the length of time in bed at about ten weeks, although in two instances, patients were permitted to get up in six weeks without apparent detriment.

The author considers that the results, on the whole, have been encouraging. Nearly all operators have reported good motion and satisfactory function, although some of the cases were not followed a sufficient length of time. There always remained, however, some shortening, varying from half an inch to an inch and a half or more. According to the writer, this arose from absorption of bone, from loss by freshening the fragments and from imperfect adjustment; but it was usually not great enough to become a large factor in the final result.

SOME STUDIES IN ASEPSIS.

Dr. Charles Harrington [27] read an important paper before the American Surgical Association on "Some Studies in Asepsis." He states: "Occasional visits to operating rooms have impressed me with the fact that, to some extent, surgeons are inclined to overestimate the importance of small possible dangers, and to take more or less for granted absolute immunity from some others of greater magnitude. It was the unquestioning faith which some have shown in the instantaneous germicidal power of corrosive sublimate and other chemicals that gave me my first active interest in the general subject of asepsis and infection; and investigation of the actual value of a large number of these substances led me to consider other matters connected with operative work, including the danger of aerial infection, the sterilization of dressings and sponges, and the disinfection of the skin of the field of operation and of the surgeon's hands."

Dr. Harrington states that "in a recent article on the subject, it is dogmatically asserted, 'The purest of sweat is impure; it is never sterile.' With this statement I take issue. Six different times in my laboratory, sweat has been made to flow from well-cleaned, and so far as is possible, sterilized forearms and hands, encased in sterile glass cylinders heated by appropriate means; and in not a single instance could a bacterial growth be obtained. Moreover, injections thereof in fairly large amounts into animals — subcutaneously, intravenously, and intraperitoneally — were quite devoid of results. That there are bacteria in the various layers of the skin and in the hair follicles there can be no doubt; but that they exist in the sweat glands, from which the outflow of secretion would tend to bar them, is by no means clear. Indeed, I am informed by a number of our leading pathologists that an infection starting in a sweat gland is exceedingly rare."

He calls attention to the danger of infection from saliva. "Repeatedly have I seen surgeons, even in abdominal cases, talking directly into the wound. It has been demonstrated by Flügge of Breslau and by several others, that in ordinary conversation there is a constant throwing out of minute droplets of saliva, some of which are projected laterally several feet. They are expelled in great numbers in the use of words or syllables beginning with the consonants *d*, *k*, *p* and *t*, the formation of which involves the sudden explosive liberation of air held in the mouth under pressure. They may be sent forth as numerously during whispering as in loud speech. Now, the mouth cavity is a singularly unclean place, for the secretions of the mouth are likely to be richer in bacteria than the foulest sewage, and these bacteria are largely staphylococci, diplococci and streptococci, and are likely to be exceedingly virulent. In one series of experiments, recently published, the average number of organisms per droplet of saliva as cast out in ordinary speech proved to be no less than 4,375."

The subject of the preparation of materials is considered in his article, and Dr. Harrington states that: "Carried out with proper precautions as to packing and vacuum formation, sterilization of dressings and sponges requires but one exposure to steam under fifteen pounds' pressure for thirty minutes at most."

The preparation of hands he considers somewhat at length and states: "The preparation of the hands for surgical work is a subject that has interested me greatly. The potassium permanganate oxalic acid portion of the process has always excited my wonder. Three explanations have been given me of the necessity or advisability of this treatment, namely, (1) That the permanganate destroys bacteria; (2) That it oxidizes the organic matters adherent to the skin; (3) That when one stains the hands in every part with permanganate and then removes the stain with oxalic acid, the hands are clean. As to the assertion that it destroys bacteria: I have experimented with saturated permanganate solution against Staphylococcus aureus and albus, Bacillus coli and Bacillus pyocyaneus, and have found that ten minutes' exposure is ineffective against all but the last mentioned. These results were obtained not once, but several times. As to the oxidation of organic matter: potassium permanganate is pre-eminently an oxidizer of organic matter. On dipping the hands into a saturated solution, they are stained a deep brown, owing to the precipitation of a lower oxide, oxygen having been given up to the epidermal scales and other organic matter. This deposit of the lower oxide is soluble in oxalic acid, which thus restores the normal color of the hands. It is assumed that the organic matter (just what harm it will do, unless it is in the form of bacteria, I do not know) is completely oxidized, and disposed of. Dip the hands, however, a second time, and see what happens. The same thing. Repeat it. Again it happens, and again, and again, and again. This is due to the fact that, immediately on contact with organic matter, the permanganate is reduced and the hands become, as it were, plated with the precipitated lower oxide, which acts as a bar to further action of the permanganate upon the parts immediately beneath the plating, just as the albuminate of

mercury prevents the further action of corrosive sublimate. A short time ago, I tried the experiment of treating my hands first with permanganate and then with oxalic acid and repeating the process until further treatment failed to give the characteristic brown stain. On the twenty-first trial, the stain was observed to be less intense, and so on to the twenty-fifth, when the experiment was discontinued. From this it would appear that to oxidize all the organic matter possible by this means is an endless task. After twenty-five treatments, I washed my hands with soap and water, and after repeated rinsing in running water, I dipped them again into the permanganate solution. At once the original dark-brown stain appeared as intensely as ever; I was then oxidizing the traces of soap, which, in spite of continued rinsing, adheres tenaciously to the skin, as is proved by the great difficulty one observes in removing, by rinsing, the odor of a scented soap after washing therewith.

"As to the statement that a hand once stained and decolorized is necessarily clean, there is but little to say. A dirty hand may be stained and decolorized as well as a clean one, but the dirt remains. Permanganate removes no dirt and destroys only weakly resistant bacteria.

"After thorough brushing with hot soapsuds, what agent can be relied upon to kill the bacteria that have not been removed? Not corrosive sublimate 1-1000, if we soak the hands a quarter of an hour; not creolin 1-20, if we soak them much longer; not lysol, nor solveol, nor bacillol, nor sulpho-napthol; not peroxide of hydrogen; not sublamin; not mercuric cyanide; not even formaldehyde in 5% solution, even though the skin could stand it. All of these agents and several others I have tested under the most favorable conditions against the common pus organisms, and all failed to kill within reasonable periods. Without going unnecessarily into details, I will give my results as briefly as possible. A little more than a year ago, I published the results of a series of experiments which demonstrated, among other things, that corrosive sublimate, 1-1000, requires more than ten minutes' contact to kill staphylococcus albus, and that weaker solutions (1-5000) act far more slowly. Recently I tried 1-500, which solution is too strong and irritating for general application, and found that it would kill staphylococcus aureus in from sixty to ninety seconds and the other pyogenic organisms in from forty to sixty seconds. With 1-100, I found that the aureus was killed after twenty seconds. Now, if 1-100 cannot destroy pus cocci in twenty seconds, and 1-500 can do so only after a minute, and 1-1000 only after ten minutes, what measure of disinfection does the surgeon attain who merely dips his hands into the solutions of corrosive sublimate in common use for only a few seconds and then rinses them off with sterile water or salt solution?"

He gives a table of twenty-two preparations, in which none kill germs under two minutes, and most of them only after five minutes. These include carbolic acid, formaldehyde, mercuric cyanide, etc. He has made a preparation that will kill germs not in minutes, but in seconds. This preparation is as follows:

Commercial alcohol (94%)	640 cc.
Hydrochloric acid	60 cc.
Water	300 cc.
Corrosive sublimate	0.8 gm.

"This mixture, then, contains 60% absolute alcohol, 6% commercial (strong) hydrochloric acid, and 1-1250 corrosive sublimate. Now, 60% alcohol will destroy staphylococcus aureus in four minutes; 10% hydrochloric acid is equally effective; and 1-1000 corrosive sublimate will kill it in three minutes. Why a combination containing all three substances, but with lesser proportions of the acid and the salt, is so much quicker in its action than any one of them alone, is an interesting question of physical chemistry."

Dr. Harrington's paper was much needed and it is hoped that it will correct the unquestioning belief in the germicidal powers of permanganate of potash and weak solutions of corrosive sublimate.

ASEPTIC SURGICAL TECHNIC: WHAT ARE THE MINIMUM REQUIREMENTS FOR ASEPTIC SURGICAL OPERATIONS IN HOSPITALS WHERE THE SURGEON IS ASSISTED BY A LARGE STAFF OF INTERNES AND BY NURSES FROM A TRAINING-SCHOOL?

Monks,[28] in a paper read before the American Surgical Association in June, 1904, gives as a summary of minimum requirements for aseptic work the following:

(1) Materials to be sterilized in saturated steam in the autoclave, for one half hour, under fifteen pounds' pressure; rubber gloves in salt solution under ten pounds' pressure. If there is not sufficient space in the autoclave for the gauze dressings they may be baked.

(2) In hospitals without proper facilities for sterilization of absorbable ligatures, these to be obtained from reliable dealers whose business reputation is at stake.

(3) An operating room which can be easily cleaned, and *which is cleaned*, where the air is kept as free from dust as possible, where draughts are minimized, and where formalin fumigation is thoroughly and systematically practiced.

(4) A hot bath for the patient, and a cleansing and shaving of operating area the night before operation, if possible (as an extra precaution). Just before operation, a second cleansing, and sterilization with 70% alcohol or some equally efficient method.

(5) Thorough mechanical cleansing of the hands, and sterilization by 70% alcohol or some other method equally efficient.

(6) Ten minutes' boiling for instruments, special attention being paid to taking apart clamps and hemostatic forceps, or at least unlocking them.

(7) Caps, masks, and sterile gloves always to be worn, at least on major cases.

(8) Warm sterile salt solution for irrigation and washing.

(9) Belief in the aseptic idea, fixed aseptic habits, and aseptic co-operation on the part of all engaged in an operation.

(10) Instructions of assistant and nurses as above set forth.

THE SAUERBRUCH VACUUM OPERATING CABINET.

Sauerbruch, at the German Surgical Congress of 1904, presented his method of avoiding the dangers from pneumo-thorax in thoracic operations.[29] In brief this consists of placing the patient in an air-tight room, large enough to contain him with table, operator, assistants and other outfit for such an operation. The head of the patient is placed outside the room, which is by a rubber curtain closed from the outside atmosphere. The atmosphere is then reduced in the room (while the patient breathes the normal atmosphere) to such a degree that when the thorax is opened the lung is kept expanded by the inhaled atmosphere. He claimed that extensive thoracic resection operations could be done in this pneumatic apparatus without essential disturbance of the heart or function of respiration.

Mikulicz, in discussing the above described apparatus, enumerated the various procedures for operating in the thorax and even on the heart which this method may make possible. He spoke of tumors of the thoracic wall, lesions of the diaphragm and the thoracic esophagus which may in the future be treated more successfully and safely. He even suggested that the relief of mitral stenosis might come to be a surgical procedure.

Brauer, following the idea of Sauerbruch, had devised an apparatus by which air under pressure was inhaled. That is, the internal pressure of the air was raised and regulated. His apparatus was simpler than the Sauerbruch chamber and less expensive. The head of the patient was enclosed in it and the patient breathed the air under pressure which prevented the lung from collapsing.[30]

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[29] Centbl. f. Chir., 1904. Bd. xxxi, s. 762.
[30] v. Laugenbeck's Arch. Bd. lxxiii, Hft. 3.
[31] v. Laugenbeck's Arch. Bd. lxxii, s. Hft. 3.
[32] 1904, Bd. xxxi, s. 684.
[33] Annals of Surgery, October, 1904, p. 561.
[37] Annals of Surgery, October, 1904, p. 475.
[38] Annals of Surgery, October, 1904, p. 464.
[39] Vide Centbl. f. Chir., 1904, No. 6.
[40] Centbl. f. Chir., 1904. Bd. xxxi, Beitrage, s. 44.

Reports of Societies.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT BRANCH OF THE MASSACHUSETTS MEDICAL SOCIETY.

MEETING of Dec. 7, 1904.

DR. JOHN T. MUNRO read a paper on

THE HUMANE TREATMENT OF MALIGNANT DISEASE FROM A SURGICAL POINT OF VIEW.*

DISCUSSION.

DR. R. H. FITZ called attention to some of the results of the surgical treatment of cancer of the stomach in this vicinity based upon the communication of Dr. J. C. Munro to the Massachusetts Medical Society in 1904, and an earlier inquiry made by Dr. Fitz and utilized by him in an address before the New York Academy of Medicine in 1901[1]

DR. DAVID W. CHEEVER: (1) It being admitted that we have no cure for cancer, and that medicine has no specific, surgery then offers the best, if not the only, recourse.

(2) It is doubtful if surgical operation in cancer prolongs life much, or as a rule.

(3) Death after recurrence from surgical operation is by no means always easier, or suffering less, than when the disease pursues its natural course. *But,*

(4) Modern surgery is painless; healing speedy; deaths rare.

(5) No suffering is so wearing as uncertainty and anticipation, and a surgical operation relieves this mental agony.

(6) Surgery alone offers, and usually insures, a period of exemption and health, varying from six months to four years, to be obtained in no other way now known.

DR. A. T. CABOT said that he would be inclined to state the present therapeutic position of cancer as follows:

Medical treatment has no remedy, and our knowledge of the etiology of cancer is too limited to enable us to use any prophylactic measures. In surgery we have the only known possibility of cure.

We believe that cancer is at first a local disease which later becomes generalized. It is plainly evident, then, that surgery to have the best chance should get hold of cases of cancer early before the disease has invaded the lymphatics and before it has become so adherent to important organs as to make its radical removal impossible.

I agree with the reader of the evening that cancer is distinctly a surgical disease, although it often falls to the lot of the medical practitioner to palliate the later stages of inoperable cancer. All would probably agree to the position that when the disease is distinctly localized and no lymphatic involvement can be made out, we are justified in making a radical removal even though the patient is exposed to considerable operative risk. Patients who die from such radical operations are spared the slow, wearing death of a progressive cancer; whereas, those in whom the operation is successful in eradicating or greatly postponing the serious results of the growth are indeed fortunate.

When, now, the cancer has reached the stage where operation for its removal is hopeless, the surgeon has to consider palliative measures, and these are, as I understand it, the measures we are expected to discuss to-night.

Cancers in the abdomen frequently bring death by obstruction of the bowels long before the disease has reached a point to cause serious symptoms through the cachexia accompanying it. This obstruction usually leads to very painful, distressing symptoms, and death brought about in this way is quite as painful as death due to the disease. When the portion of the bowel containing the cancer can be side-tracked, and the intestine above can be connected with that below, this operation is often followed by the greatest relief and return of comfort. Gastro-enterostomy for an inoperable cancer of the pylorus or duodenum, entero-enterostomy for cancer lower down in the intestinal tract, and finally colostomy for inoperable cancer in the rectum or lower portion of the sigmoid flexure are all humane operations and save great suffering besides often adding one or two years to the life of the patient.

A good deal has been said at times about the horrible

* See p. 61.

[1] BOSTON MED. AND SURG. JOURN., 1901, exlv, 693.

condition produced by the Littré operation; that is, a colostomy in the left iliac region. I felt opposed to it myself when I had had but little experience with it, but I must say that as I have used it more and more, I have found that patients are singularly comfortable with an artificial anus at this point. They find that the bowels are quite easily controlled; operate at given intervals when they can be attended to, and leave them to go about in comfort and safety during the rest of the day. I have had patients tell me that they were perfectly able to go to church without fear of accidents occurring, and within a day or two a patient of this sort, going home from the hospital between three and four weeks after the operation, felt such entire confidence in the control of the artificial opening that she asked me if I did not think she could soon begin skating and other out-of-door exercise of which she is fond.

The above remarks apply also to the artificial anus after a Kraske operation which also admits of a reasonable control of the bowel movements.

In cancer of the bladder, a great part of the suffering is often due to remediable causes. These patients suffer very greatly from hemorrhage into the bladder and from the pain caused in getting rid of the clots. In such a patient, a partial operation, removing the greater part of the growth, cauterizing the base, will often give a long respite from hemorrhage and will restore the patient to a very reasonable degree of comfort. If the growth is in the neck of the bladder, so that serious obstruction to the passage of the urine is caused by it, the establishment of a suprapubic fistula by conducting the urine away gives the neck of the bladder a rest and spares the patient pain previously caused by the passage of urine through it.

Cholecystostomy is very useful in promoting the comfort of patients with inoperable cancer of the gall bladder or of the gall ducts. When an exploratory operation for a doubtful condition about the liver reveals this condition, drainage of the gall bladder will do a great deal to relieve the icterus and the uncomfortable itching which it causes. In the treatment of cancer of the breast and of other cancers at or near the surface of the body, surgery can often do much to palliate suffering. A painful ulcerating mass of cancer on the surface may often be removed with great relief to the distress of the patient.

Finally, I think that the x-ray offers a very valuable means of treatment for cases manifestly unfit for operation.

I am sure that in large inoperable cancers of the breast and elsewhere I have seen relief of pain and diminution of the tumor in a number of cases. In several cases, I have felt convinced that the rapidity of growth was so checked that the patient was given many months of life. This treatment can be well used to supplement operations done for the removal of painful or ulcerating masses. Sometimes, if the greater part of the growth is removed, the x-ray acting directly on the base and on what is left, produces better results than if applied to the large tumor.

While were cognize that the x-ray is applicable mainly to surface growths, it should not be withheld from patients with deep-seated disease. Within the past year I recommended the use of the x-ray in a case where a cancer originating in the prostate had involved the pelvic glands, and extended even into the suprapubic glands of the groin, causing considerable tumors there, and so obstructing the circulation that there was considerable swelling of the legs and disability in consequence. The x-ray was vigorously and effectively applied, and to our agreeable surprise produced a rapid diminution of the size of the tumors and so relieved the pressure on the vessels that the swelling largely disappeared from the legs, restoring the patient to a condition of comfort which permitted of his enjoying life on his yacht and his country place for some months. Finally, uremic symptoms set in and death resulted as might have been expected. The last six months of this patient's life, however, were changed from a time of misery and confinement to one of comparative freedom and reasonable comfort.

I am, therefore, a strong believer in the efficacy of the x-rays when rightly applied to suitable cases, and think that their usefulness will increase as we learn how to apply them more efficiently.

A NEW METHOD OF USING THE X-RAYS IN TREATING DEEP-SEATED DISEASES.

DR. FRANCIS H. WILLIAMS: I am very glad to have the opportunity of saying a few words in regard to the treatment of malignant disease by a new method of using the x-rays. Those who have been studying this subject of treatment are of the opinion that the x-rays may render good service, first, in early cases of superficial malignant disease; second, after recurrence in such disease; third, that they may be used advantageously as a preventive after operation; and fourth, to give relief in inoperable cases. I wish now to offer some considerations in favor of early treatment by the x-rays in certain cases of malignant disease which are not superficial, for example, in early malignant disease of the breast.

For some time past I have been measuring, by means of a fluorometer, the amount of x-rays that issue from Crookes' tubes and I have found that this amount varies very much with different tubes and with the same tube under different conditions. Recently I have also measured the proportion of rays of different degrees of penetration that are given off by vacuum tubes, and I have found that under certain conditions a large percentage of those issuing from the tube had so little penetrating power that they would be absorbed in the skin and in the tissues one-half inch (13 mm.) below it.[3] The following measurements will serve to illustrate this difference in tubes: From one tube I found that 36% of the rays would be absorbed within a half inch of the surface, from another 45%, from another 48%, and from still another 84%.

Obviously, when the practitioner is using such tubes for treating growths below the surface, the rays absorbed by the skin would very probably cause a burn before a satisfactory effect had been produced on the disease by the more penetrating rays; but this difficulty can be overcome by placing different thicknesses of aluminum, between the tube and the patient, as by this means the rays which act upon the surface only and therefore would be harmful, can be excluded. The thickness of the aluminum must depend, of course, on the depth of the disease and the character of the intervening tissues. It seems to me probable that by following the method I have indicated, namely, of excluding the rays which are absorbed near the surface, and measuring the amount used at each exposure (this is equally important, for if it is not done the dose is too uncertain), good results may be obtained in the treatment of some, at least, of the very early cases of malignant disease of the breast, for example, and metastases may perhaps be prevented. This treatment must of necessity include exposure of all the neighboring glands. Clinically, even without the use of this method, I have had unexpected success

[3] Radiographs demonstrating the comparative degrees to which the soft tissues of the body and various thicknesses of aluminum were penetrated by the x-rays were shown, and many curves illustrating the amount of x-rays issuing from vacuum tubes and the difference in the penetrating power of these rays were presented.

in treating some patients with malignant disease of the breast who refused operation. After two years or more of treatment, the latter part of the time at rather long intervals, the mass in the breast had diminished very much and the general condition of the patients was better.

The disadvantage of the x-ray method of treatment is that it must be of long duration and that it is expensive except for hospital patients.

I should add that the fluorometer measures the fluorescence caused by the x-rays, but does not necessarily register the amount of chemical action exerted by them as estimated by a photographic plate. However, the fluorometer readings will keep us on the safe side for the present, when using the x-rays, for treating deep-seated disease, as the amount of fluorescence they indicate is a little higher than the chemical action produced as judged by the negative; that is to say, rays of high penetrating power show greater fluorescence on a screen than they do chemical action in a photographic plate, probably because they pass through the former less readily.

DR. F. B. LUND: It seems to me that the cases of malignant disease which present difficulty in regard to the question of operation are not the early cases in which we can hope for long continued respite or even cure, but the more advanced cases, in which the disease is extensive, ulcerated, adherent to important structures, perhaps presenting internal metastases. These latter cases tax the surgeon's resources to the utmost. He fears that the relief afforded by operation may be too temporary to make the procedure worth while, or that the operation may be more serious than would be a continuance of the disease. In this class of cases, one must be careful, however, to be absolutely certain that he can do the patient no good before condemning him to suffer from his disease without the hope of relief afforded by operation. Certain surgeons have held that we were justified in operating upon those extensive cases of ulcerated malignant disease only when the patient was suffering from severe pain or compression of the nerves. We must remember, however, that there is a mental pain and suffering from the possession of malignant growth, which to sensitive patients is almost as great a drag as actual physical pain. As the growth extends the stench becomes unbearable. Patients are compelled to live in isolation as far as possible and to suffer from the presence of the constant stinking discharge, horrible to themselves and their attendants.

I have become convinced that, in the majority of cases, though by no means all, a hopeful view of the results of operations is the wiser one to have for the patient. If we can excise the whole of the growth, even if recurrence comes early, we may give the patient three or four months, or even a few weeks, of relief from their disgusting disease and they are happy for a while in the hope the disease will not return. It is far preferable to operate upon these cases wherever we can hope for even a short period of respite, than to leave the patient without hope in the presence of such a malady. Years of immunity frequently reward the surgeon's efforts.

Modern methods of operating, the temporary ligation of arteries, and other improvements, have enabled us to deal with more formidable cases with greater safety and security than a few years ago, and when we contrast the fate of these patients left alone with the possible results of operation, we feel that we are justified in advising them to take a great risk for the sake of relief, even if temporary, from the disease from which they are suffering. The operations not infrequently turn out to be more simple than appear to be the case before they are begun.

I well remember a case which presented itself at the City Hospital Out-Patient Department a number of years ago. A strong, healthy farmer from New Hampshire appeared with an extensive ulcerated carcinoma involving the lower jaw and submaxillary gland, which was adherent to the deep structures of the neck, and to me it seemed hardly worth while to attempt operation upon it on account of the doubt of getting it all out and the probable rapidity of recurrence. He was seen in consultation by Dr. Munro, however, and was operated upon by him. He bore the operation well and returned to his home. In the spring of the year following he came back with the recurrence. His first remark to me on presenting himself was, "Doctor, I have had five months of solid comfort." Is not such a result as that worth a few hours' work on the part of the surgeon?

In regard to the exploratory operations for malignant disease within the abdomen, there can be no doubt that the mortality of exploratory operations *per se* is nothing. Although the patient, already moribund from extensive abdominal disease, dies a few days after an exploratory operation, it is not fair to ascribe the death to the operation and not to the disease.

In this connection exploratory operations for malignant disease, in order to afford hope of a cure or an extended period of relief, must be undertaken at a considerably earlier period than has been often done in the past.

Within ten days I performed an exploratory operation upon a patient who was believed to have carcinoma of the pylorus and was admitted to the hospital for symptom of hemorrhage. He had a severe hemorrhage from the stomach while in the admitting room of the hospital. The operation disclosed a benign ulcer in the pylorus, with dilatation of the stomach. A gastro-enterostomy resulted in the cessation of the hemorrhage and the rapid progress of the patient towards recovery. It would be hard to convince this patient that it is not worth while to make an exploratory operation in cases suspected of malignant disease.

I have been much impressed with the value of exploratory operations for the relief of jaundice due to malignant disease obstructing the bile duct. I recall a case of a woman who was very ill, deeply jaundiced, upon whom a cholecystenterostomy was done, uniting the gall bladder to the duodenum, and thus draining the bile into the intestine. At the time of the operation a metastatic growth was noted in the liver. She left the hospital in two weeks, and at her home did well and gained fifteen or twenty pounds in weight, and improved to such an extent that the family doubted our diagnosis of malignant disease. After three months at home she returned to the hospital with a great deal of pain in the right hypochondrium. A second operation disclosed extensive infiltration of the liver with cancer, for which nothing could be done. She left the hospital ten days after this second operation, and died two days after getting to her home. I cannot help believing that in this case, although death occurred so soon after the second operation, it was better to make an attempt to do something for this woman than to let her alone without affording her any hope of relief.

It would be easy to go on enumerating cases apparently hopeless, in which relief for long periods has resulted from operative attempts. There have, of course, been very many discouraging failures, but in the presence of such conditions as those with which we are dealing, many failures should not discourage us, while a few successes more than neutralize many un-

successful cases. In the unsuccessful cases, we have at least done something and afforded the patient a certain amount of hope in the presence of otherwise hopeless conditions.

Dr. H. L. Burrell: The subject of the humane treatment of malignant disease may be considered from these two standpoints: first, as to diagnosis; second, as to the alleviation of suffering in apparently hopeless cases. To include under the general term malignant disease a small patch of epidermal cancer (rodent ulcer), an epidermoid carcinoma, a fulminating osteosarcoma of the thigh, and a melanotic sarcoma which will inevitably end the patient's life in a short time, seems to me illogical. There is too great a difference in the natural history of these various manifestations of the broad term "cancer" to warrant their consideration together.

In many tumors that are recognized clinically as cancer, their course cannot be prognosticated until they have been removed and a microscopic examination made. Even cases that are pronounced by the pathologist to be cancer vary in malignancy, and I know of no one who possesses sufficient skill to prognosticate precisely the length of time that life will be maintained in a given case. In prognostication in malignant disease I think that as a profession we "take ourselves too seriously." A patient comes before us with a tumor; we examine it, we look wise and express, perhaps, an opinion to the effect that the patient will live for a given period of time. To state, for example, that a patient will live two years with a cancer of the breast, without operation, simply means that the average patient with the average cancer lives that period of time. With an individual case of cancer in an individual patient, it is impossible for any practitioner to prognosticate the length of life. Even accepting that a microscopic examination of a tumor is made, in some instances the pathologist is unable to, for example, differentiate between granulation tissue and some forms of what is called sarcoma. Accepting that these are the conditions which govern prognosis, I think we should hesitate about accepting the clinical diagnosis of cancer without operating. To condemn a patient as absolutely doomed to death by cancer is an assumption of knowledge by the practitioner that is not warranted by facts. Until diagnosis can be made an accurate science and not an art, as it is at present, operations on tumors for their diagnosis and removal should be judiciously undertaken. Second, the question of whether to operate in a given case where the patient is apparently inoperable, seems to me to be most important. I can entirely understand how Dr. Fitz arrived at the figures that he presented in his paper on "Some Surgical Tendencies from a Medical Point of View." I infer that cases were taken from hospital records kept by various men with more or less accuracy, and I think that we all recognize that hospital records of this description are not to be depended upon. Correspondence with patients or their friends gives, from circular letters, only a point of view which is biased by what the patient or his friends expected to gain from a given operation, and that too gives information that may be misleading.

If a patient has a foul, stinking cancer of the breast that is certainly going to kill her, she should have the comfort of being rid of this offensive mass. I think all of the gentlemen present appreciate the relief that is afforded a patient by such an operation — a relief to a patient that was first taught me by the chairman of this meeting.

The amount of operating that will give relief to an individual patient in an apparently hopeless and inoperable case must be decided in each individual case. I sympathize entirely with Dr. Munro's position in reference to the removal of malignant disease. I operate on patients whenever I hope they will be benefited. Another matter that should be considered in this relation is that the patient himself should have something to say upon the subject of whether he is to be operated on or not. A clear, concise, humane statement of the condition usually brings forth a decision on the part of the patient or his friends as to operation. The mental relief that is given to a patient by the removal of malignant disease, even if only a respite of life is given, cannot be over-estimated.

Dr. F. B. Harrington: There can be no question but that surgery is frequently of the greatest benefit in cases of hopeless malignant disease bringing temporary relief from suffering and hope for the hopeless.

In expressing this idea Dr. Cheever did not also state that surgery not infrequently cures malignant disease. This cannot be said of any form of drug treatment. I believe there is always a period at which carcinoma is a purely local disease. Why is it that the results of operations in carcinoma of the breast are so much more favorable as regards non-recurrence than they were twenty years ago?

There are two reasons: one of which is thoroughness of operation, and the other, of equal or greater importance, is the early recognition and removal of all breast tumors. The profession and the laity are awake to the importance of investigation whenever a tumor appears in the breast. As a result, the number of early operations has increased and permanent cures are now more frequent.

If we can learn to make early diagnosis in disease of the tongue, the rectum, the stomach, gall bladder and the intestines and can teach the public to realize the importance of early interference, our results will show a much larger per cent of cures in malignant diseases in these parts.

Our efforts should be early recognition and prompt and thorough removal.

Surgery is the course we must pursue until a better one is found, and this will probably be some form of preventive inoculation.

Dr. Munro in closing said, that he did not operate, by any means, in all cases that applied. In a few cases, almost moribund, where operation was done as a last resort, it had been done at the importunate request of the patient. Such cases as these should not be classified as exploratory laparotomies. The true condition was too obvious before operation.

Dr. Cheever had said that life was not necessarily prolonged by operation, and that is undoubtedly true in an unknown proportion of cases, but even if the patients do not live any longer, they are given a "period of exemption" from suffering, a term which so ably describes the result attained in many instances.

The comfort that Dr. Cabot referred to in colostomy, drainage of the bladder, etc., is of very great importance in dealing with certain classes of disease, and there is no doubt that the x-ray affords astonishingly marked relief from suffering in advanced malignant disease.

The education of the laity to the realization of the benefit to be obtained from surgery, as emphasized by Dr. Harrington, is one of the duties of the physician and surgeon. The fact that in tumors of the breast there is already progressive inclination for women to seek earlier advice with a view to operation is one of the best indices that surgery has accomplished something tangible.

Recent Literature.

Friedberger & Fröhner's Veterinary Pathology. (Authorized translation.) Translated and Edited by M. H. HAYES, F.R.C.V.S. With Notes on Bacteriology by Dr. G. NEWMAN, D.P.H. Volume I. London: Hurst & Blackett, Ltd. Chicago: W. T. Keener & Co. 1904.

For many years, Friedberger and Fröhner's "Lehrbuch der speciellen Pathologie und Therapie der Hausthiere" has been considered by competent judges to be the best treatise on the diseases of animals and their treatment. It is not alone of inestimable value to the practitioner, but it must be regarded as an important addition to medical literature to which the research scholar gladly turns. The work has already been translated into French and Russian and is used as a textbook in these countries.

An English translation should, therefore, be hailed with delight, as there is no really good English work covering the practice of veterinary medicine. It is consequently disappointing to find that the volume under consideration has been edited, as well as translated, by Captain Hayes. The translation of a standard work is most commendable, but to edit it also and commit faults of omission and addition, and even to mistranslate, is regrettable. It would seem better if Captain Hayes had written a book himself and made no mention of translation, for many persons overlook the word "edited" and are misled in the belief that the volume is a translation of a most important work.

The title, "Veterinary Pathology," seems unwisely chosen, since the book is a treatise on the practice of veterinary medicine and not a pathology, though far more attention is given to pathological anatomy than is usual in books intended for the practitioner.

In the German work, we find the infectious diseases in the last part of Volume II, while Volume I of Captain Hayes' book is given up to these, or rather to "infective diseases," as he calls them, meaning thereby "one that is caused by a living micro-organism which is capable of becoming developed in the animal body," as we are told in his last chapter on "the terms infection and contagion."

The sixth German edition is before us, published in 1904. There is some doubt whether Captain Hayes took this as the basis of his English work, or the fourth German edition, published in 1896. Presuming that he has chosen the latest, we turn for comparison to the chapter on tuberculosis in the sixth German edition. With practically the same number of lines to the page, the original gives seventy-one pages to this important disease, the translator but fifty-two. On page 152, the translator says of the tubercle bacillus, "It is easily stained with aniline dies, and can be cultivated at the temperature of the body on gelatine obtained from the blood serum of cattle." As the tubercle bacillus is one of the few organisms which does *not* stain readily, and as we never heard of that particular kind of gelatine, we turn to the German work, page 320, and read: "The bacilli stain with basic aniline dies, and are thus acid-fast and also alcoholic-fast." The following sentence speaks of the cultivation of the tubercle bacillus upon brain agar and brain serum, but we see no mention of the above named gelatine.

We believe that it has not yet been established that the tubercle bacillus produces spores, consequently it is a surprise to read (page 152) that they "form small oval resisting spores." The original work does not mention the subject of spores in the corresponding paragraph. Again, in speaking of the resisting power of these bacilli to various agents, the translator says that this "is due to the fact that the bacilli form resting spores" (page 153), while the German line reads: "although the bacilli probably do not form spores" (page 321). Such translating or editing seems inexcusable. It not only tends to make one stamp the work as valueless for the student, but it places the authors in a false position in the eyes of more experienced readers.

The last one hundred pages in each of the two volumes of the original contains an exhaustive bibliography of each subject discussed in the text. This adds immeasurably to the value of the work for the investigator. Captain Hayes omits the bibliography, and inserts at the beginning of his volume a page on weights, measures and degrees, with comparative tables and methods of converting centigrade to Fahrenheit, and vice versa. This is of importance, as he makes use of the metric system in his text. At the end of the volume are twenty-six pages devoted to "Notes on Bacteriology," covering the classification of bacteria, their products, channels of infection, immunity and technical methods. Also, two pages on "The terms infection and contagion."

While the volume under consideration is unfortunately not what it might have been had a proper translation been made without editing, it is nevertheless a very valuable textbook for the student and practitioner of veterinary medicine; perhaps, indeed, the best in the English language for this purpose. Yet we cannot refrain from again calling attention to the fact that Captain Hayes has taken great liberties with the authors' words, probably in many instances replacing them with his own theories, which are far from being as sound as those of Friedberger and Fröhner.

A Textbook of Diseases of Women. By CHARLES B. PENROSE, M.D., Ph.D., formerly Professor of Gynecology in the University of Pennsylvania. Fifth edition, thoroughly revised. Octavo volume of 550 pages, with 221 original illustrations. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This fifth edition of Dr. Penrose's work maintains the reputation of the book as a good clinical manual. New matter and several new illustrations appear and the presswork and binding are of the usual high order of merit. We are sorry to note the absence of any mention of chorio-epithelioma, a disease which has assumed a good deal of prominence of late years.

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THE ARTICULAR SURFACES OF LONG BONES AS A SIGN OF SEX.

In the Shattuck lecture of 1894 Dr. Thomas Dwight, Professor of Anatomy in the Harvard Medical School, spoke of the relatively small size of the female joints as a guide to the sex of bones, but the numbers were hardly large enough to be convincing. Nevertheless, Dr. Dorsey applied the method to prehistoric bones of which the sex had been determined from the pelvis with confirmatory results. Since then Dr. Dwight, continuing his work on this interesting and difficult subject has tried to get a series that should be satisfactory, using the articular heads of the humerus and of the femur of dissecting-room subjects, and has published his results in *The American Journal of Anatomy*, for December, 1904. The measurements were made with the articular cartilage intact. The largest diameter of the head of the femur was taken, but the elongated shape of the head of the humerus requires both a vertical and a transverse diameter, which were kept in separate series. After one hundred bones of each sex had been measured a chart was prepared, but though convincing, the curve was very irregular. To correct this fifty additional measurements of each sex were taken, and then fifty more; so that there are now measurements of four hundred bones equally divided between the sexes, only white adults being used. The relative scarcity of female subjects and the necessity of rejecting many on account of joint-disease or of injury in dissection, prolonged the work through several years. The results seem to establish the principle. The average difference in the two diameters of the head of the humerus and in those of the head of the femur is not far from 6 mm. The height of the head of the female humerus is to that of the male as 87.5 is to 100, the transverse diameter of the same is 87.2 and that of the femur 88.2. In short a difference between the sexes of about 12%. Details are more curious and more convincing. Thus "there is only one male with a vertical diameter of the head of the humerus below that of the average female and only two females with the same diameter above that of the average male. Taking the transverse diameter of the head of the humerus we find two males below the female average, and three females above the male average. With the head of the femur we have but one male below the female average and but one female above the male average." The binomial curve is, however, much more valuable than averages and the plotting of the curves gives very striking results.

For simplicity we shall discuss but one series of measurements, taking the first, that of the vertical diameter of the head of the humerus. It is deduced from the curve that in the thirty-six smallest bones there was no instance of a male one; in the smallest ninety-four, but one instance; in the smallest one hundred and thirty-three but four; and in the smallest one hundred and seventy-one but nine. The larger half showed corresponding results. There was no female bone among the fifty-one largest; but three among the one hundred and thirty-five largest; and but ten among the one hundred and sixty-five largest. By a slight manipulation the bones may be divided into a longer and a shorter half of two hundred each. Of the smaller half one hundred and seventy-seven were female and only twenty-three male. These figures of course are reversed, for the longer half. A remarkable fact deduced from the study of the curves is that if a very few erratic individuals be suppressed, there is very little overlapping of the male and female curves; thus, considering still only the same measurement, that of the vertical diameter of the humerus, if nine male and ten female specimens be eliminated, only 4.75% of the whole, there remain but sixty-four bones 16.8% of the remainder that overlap (that is to say that prevent the sexes from being arranged on opposite sides of a certain diameter) and this overlapping is limited to diameters of 45 and 46 mm. That is to say, after putting out of consideration this trifling proportion, less than 17% of the remainder measure 45 or 46 mm. and excepting these every male bone has a larger diameter than 46 mm. and every female bone one less than 45 mm. The

transverse diameter of the head of the humerus is if anything stronger in confirmation of the law than the vertical one. The head of the femur is rather less so, for after taking away precisely the same proportion as above there remain 3 mm. of overlapping instead of two. But even the worst is very convincing.

Everybody knows that men's bones are larger than women's, but it is shown that the relative length of male and female bones offer no criteria of sex approaching the value of these measurements of the joints. A striking illustration is given by a photograph of the humerus of a very puny young man beside that of a woman said to have been uncommonly muscular. The male one is a trifle longer, but its shaft is the more slender; and yet in view of this law the sex is clear at once from the greater size of the head of the bone.

POPULAR DISSEMINATION OF MEDICAL KNOWLEDGE.

THE tendency which has of late become noticeable and is destined ultimately to have considerable influence upon the relation of medicine to the community is the popularization of many matters which a few years ago did not get beyond the pages of scientific publications. However much we may regret the superficial popular knowledge of matters which should pertain to the practice of medicine, we cannot fail to see certain distinct advantages arising from the dissemination of well-ascertained medical facts. The investigations of the past few years have lent themselves to the encouragement of this tendency. There can be no doubt that it is well for the community at large to appreciate fully the relation of the mosquito to malaria or to yellow fever, that the contagiousness of consumption must be continually impressed by every means in our power, and that the common facts of hygiene, about which the people in general are poorly informed, should have wide circulation.

We, therefore, see now as never before articles appearing in semi-scientific publications, or even in the daily papers, which a few years ago would have been altogether exceptional. This is certainly as it should be. Not many years ago, when our knowledge was of so empirical a character that useful statements of a practical sort could hardly be made, it was clearly unwise to disseminate among the uncritical our half-knowledge. With the progress of investigation, however, this is changed, and now we have in our possession many facts which it is imperatively necessary should be made known to the public for the general benefit of the community. It has become the duty as well as the privilege of the physician to express in a way which will give it the widest circulation knowledge useful to the public health in the broadest sense of that term. We have, therefore, papers and articles, circulars from boards of health, public lectures and exhibits, all intended to teach the lesson of the prevention or the treatment of widely prevalent diseases. This tendency will in no sense infringe on the principles long established in the medical profession, but rather serves to bring the profession as a whole into closer relations with the work of other departments of knowledge without in the least affecting the relationship between individual patient and physician.

As an example of this altogether commendable tendency we would again call attention to the series of lectures now being given before the Lowell Institute by Prof. W. T. Sedgwick on the general topic of the "Sanitation of Cities." Professor Sedgwick brings to this task a peculiar knowledge, gained through long study of biological problems in their practical application. His discussion of the subject, so far as it yet appears, is a peculiarly happy statement of scientific facts in popular language. This course of lectures serves to illustrate our point that the laity is more and more being given the opportunity to learn from authoritative sources about matters which intimately concern it. In final analysis the public naturally is most vitally interested in tuberculosis or malaria or sanitation, and it is altogether fitting than when, through the painstaking work of investigators, certain facts are determined, they should be spread abroad in popular form. The dignity of the medical profession will certainly not suffer thereby, as some at times seem to have feared.

REPORT OF THE MASSACHUSETTS HOSPITAL FOR EPILEPTICS.

THIS institution is attracting an increasing degree of public attention, partly on account of the renewed interest which is being taken in the study and treatment of epilepsy and partly because of the excellent work which is being done there. Dr. W. N. Bullard for the board of trustees calls attention to the needs of the institution and to the improvements which have been made during the past year. Two new buildings have been opened for the reception of patients, each planned to accommodate sixty males capable of

farm and similar work. An increasing amount of out-of-door work has been done during the year by patients, such as road making and grading, which the position of the buildings necessitates. The trustees again insist upon the value of occupation in the treatment of epilepsy. As the institution develops no doubt this element of its work will become increasingly complex, and finally of use not only to the institution and to the patients engaged in it, but also indirectly to the community outside.

Next in importance to the treatment of patients is the development of knowledge regarding the disease itself. It is pointed out very rightly that comparatively little time is at the disposal of the resident physicians for original work after their routine duties have been performed, and also that money is necessary adequately to carry out many lines of investigation. In problems of so subtle and difficult a character as epilepsy presents the outcome of any investigation, as Dr. Bullard suggests, is uncertain and, therefore, not particularly impressive to those unacquainted with the exigencies and difficulties of scientific work. We are, however, increasingly impressed with the opportunities which hospitals of this character offer for study of the best sort, and it is a gratification to note that these opportunities have been cultivated by the physicians of the hospital. Sixteen articles have been written, many of them requiring much special investigation and covering a wide field of subjects relating more or less directly to the general problem of epilepsy. A number of autopsies have been performed, considerable pathological material collected, and in general there is no question that the spirit animating the institution is one of thorough-going scientific endeavor, which has already produced results and which cannot fail to produce more as time goes on and the opportunities for research increase.

The superintendent, Dr. Everett Flood, in his report calls attention to the somewhat appalling fact that the entire number of epileptics in Massachusetts cannot be estimated at less than ten thousand, of whom at least 10% desire treatment away from home. As hospital facilities increase and prejudice wears away, there can be little doubt that a larger percentage will seek hospital treatment, where experience has already shown, better results can be attained than at home. One of the problems of the future, as it has been of the past, is the proper classification of the chronic sick in our various public institutions. For example, in the hospitals throughout the state there are one hundred and forty-nine epileptics who should be cared for at the hospital for this disease. This transference of patients and the proper classification of our various dependents is a work which may well occupy the attention of those in authority.

THE TUBERCULOSIS QUESTION AND THE LONG ISLAND HOSPITAL.

As a consequence of Dr. W. T. Councilman's detailed statement, published recently in the Boston *Herald*, and to which we alluded in our issue of last week, an impression appears to have arisen that the design is to convert the Long Island Institution into a hospital for tuberculosis. This naturally is not the fact, and a careful reading of Dr. Councilman's statement will show that his plan, as outlined, is to place a hospital for tuberculosis on Long Island along with the hospital already there established. For many years there has been on Long Island a hospital for chronic disease accommodating between two and three hundred patients in connection with the almshouse, and including in its numbers many persons suffering from tuberculosis. This hospital must continue to exist whatever may be done with the tuberculous patients already there and those who may come in the future. As previously stated on more than one occasion, we are in favor of establishing at Long Island a municipal hospital for the treatment of tuberculosis, but the further fact should not be lost sight of that the development of a hospital for chronic disease in general has now been going on for many years, and has finally reached a stage when more rapid growth may be expected in the near future. The city needs and must have an adequate hospital for the chronic tuberculous. It also requires no less urgently a hospital for sufferers from other forms of chronic disease, whose needs, as Dr. Councilman says, are as great as those of the consumptive and whose sufferings are often greater. These patients must be taken care of with unceasing attention in the future and the existence or non-existence of a hospital for tuberculosis on the same island can in no way alter this fact. This plan suggested by Dr. Councilman, and evidently misinterpreted by various writers in the daily press, is to enlarge the existing hospital for the accommodation of tuberculous patients as may be needed to meet the requirements. This is a logical development of the hospital already established, and in no way intended to supersede it by another for a different purpose.

MEDICAL NOTES.

THE LARGEST UNIVERSITY IN THE WORLD. — Berlin University is said to be the most numerously attended seat of learning in the world. It contains 7,774 matriculated and 1,330 non-matriculated students. The philosophical faculty embracing philology and natural sciences, numbers 3,572 students; medicine, 1,111; law, 2,756, and theology, despite the eminence of its professors, only 335. America sends 123 students, Africa 8, Australia 3 and Asia 37.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Jan. 18, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 35, scarlatina 34, typhoid fever 8, measles 10, smallpox 0.

The death-rate for the week ending Jan. 4, 1905, was 22.33 of total deaths reported.

MEASLES IN MELROSE. — Measles has broken out in Melrose, Mass., to such a degree that the schools may be closed. Upwards of one hundred cases have been reported since Jan. 1, and it is thought that the height of the epidemic has not yet been reached.

A CENTENARIAN. — James O'Brien, who is said to have reached the age of one hundred and four years, died Jan. 12, in Charlestown, Mass. He came to this country at the age of fifty-five, and was a laborer until toward the end of his life. He finally gave up work at the age of ninety.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending January 14, was 232 as against 236 the corresponding week last year, showing a decrease of 4 deaths, and making the death-rate for the week 19.67. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 48 cases, 8 deaths; scarlatina, 34 cases, 2 deaths; typhoid fever, 8 cases, 1 death; measles, 8 cases, no deaths; tuberculosis, 46 cases, 28 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 48, whooping cough 2, heart disease 22, bronchitis 10, marasmus 2. There were 10 deaths from violent causes. The number of children who died under one year was 32, under five years 57, persons over sixty years 54, deaths in public institutions 67.

NEW YORK.

TRAINING SCHOOL FOR NURSES, BELLEVUE HOSPITAL. — The graduating exercises of the New York Training School for Nurses at Bellevue Hospital, which the oldest in this country, were held on January 10. Diplomas were awarded to sixteen, and Prof. William M. Sloane of Columbia University made the address to the class. In her annual report the president of the school, Mrs. William Church Osborn, stated that district visiting in the homes of tuberculous patients and attention given in the special clinic for this class of patients had constituted a new line of work during the past year. Another feature introduced in the course was the practical teaching of dietetics in the new diet kitchen of Bellevue Hospital. With an increase of many hundred patients at Bellevue each year — 2,000 in 1804 — an increasing number of nurses has been required. The three old buildings in East 26th Street, opposite the hospital, now occupied by the school, have become over-crowded, and land has been purchased on 25th Street for a new building, which will be put up as soon as the requisite funds can be secured.

A NEW RED CROSS HOSPITAL. — William T. Wardwell, President of the New York Red Cross Hospital, is to give $100,000 for the purchase of a site for a hospital. This, it is expected, will be located on the upper Westside, in the vicinity of Fort George, where the population is increasing very rapidly and a hospital is needed to meet its demands. The nearest one to the position named, at least on the lower side of the Harlem River, is the J. Hood Wright Memorial Hospital, at 131st Street and Amsterdam Avenue, fully three miles distant. The training of nurses will be made a special feature of the new institution. At present the Red Cross Hospital occupies modest premises, in an ordinary dwelling-house, in West 82d Street.

MODEL TENEMENT HOUSES. — Henry Phipps, the former associate of Andrew Carnegie, has announced his intention of devoting the sum of $1,000,000 to the construction of model tenement houses. He proposes to organize a society to take charge of the matter, and has asked twelve prominent citizens to serve as trustees. Among the latter are Mayor McClellan, Robert W. DeForest, recently Tenement-house Commissioner, Isidor Strauss, the founder of the Strauss milk charity, Charles Stewart Smith, ex-president of the Chamber of Commerce, and Dr. E. R. L. Gould, President of the City and Suburban Homes Company and recently City Chamberlain. In a letter to these gentlemen in which he outlines his plan Mr. Phipps says: " I should like

the buildings to have all the light and air possible; to have them fire-proof and thoroughly sanitary, and, as far as possible, to have spaces around them in which the children could play." He states that his object is to make this money do as much good as possible. He would preclude the idea, however, that by living in these houses tenants would become objects of charity. His wish is that the rooms should not be rented at a price below the market rate, and he would expect the tenements to be so planned as to earn about 4% on their cost, after allowing a proper amount for maintenance and repairs. It is understood that Mr. Phipps will himself be president of the society, Mr. Strauss, vice-president, and Mr. DeForest chairman of the executive committee. Four of the trustees are especially well qualified for the position, as they were members of the State Tenement-house Commission of 1900, which framed the present tenement-house law, and one of them, Mr. DeForest, was not only a member of this commission, but also the organizer of the new Tenement-house Department of New York City.

Obituaries.

PHOEBE A. SPRAGUE, M.D.

At the December meeting of the New England Hospital Medical Society, the following resolutions upon the death of Dr. Phoebe A. Sprague of Springfield were passed:

It becomes our sad duty to record the loss by death of another of the earlier members of our society, Dr. Phoebe A. Sprague of Springfield, Mass.

Although living at such a distance from Boston, she attended the meetings of the New England Hospital Medical Society whenever the exacting duties of her practice permitted.

Be it therefore resolved, That in the death of Dr. Sprague the cause of women physicians has lost a most loyal and valued worker, — one who ever gave untiringly of her best, who was self-sacrificing almost to a fault, and who was ever the wise and efficient counsellor of the suffering and the poor.

Resolved, That these resolutions be placed upon the minutes of the Society, that they be published in the Boston Medical and Surgical Journal, and that a copy of them be sent to the family.

Emily Pagelsen Howard, M.D.,
Mary Almira Smith, M.D.,
Committee.

After a life of three score years, the greater part of which was devoted to public service, Dr. Phoebe A. Sprague of Springfield, passed away at her home in Holley, N. Y., last December. Dr. Sprague, who was one of the most well-known of the earlier women physicians in Massachusetts, was born in the town in which she died, in 1845. She received her general education in the public schools, later attending the Brockport Collegiate Institute. She began her medical training at the Women's Medical College of Chicago, and after graduating served as interne at the Chicago Hospital for Women and Children. She moved to Springfield, Mass., in 1873; and at once, by her thorough, skilful and conscientious work, forged ahead into a position of prominence in that city's medical fraternity.

Speaking of Dr. Sprague's life there, the Springfield *Republican* says:

"She gave herself to the needs of her patients with the same great generosity which distinguishes worthy members of the profession always. While a member of the Hampden County Medical Society, she served on its board of censors; she was obstetrician at the Home for Friendless Women, and for years she was a member of the Board of the Union Relief Association. She was not only useful and faithful in her service on the board, but was at all times ready to give her medical advice and attention when it seemed necessary. It was regarded as a distinct loss when, a few years ago, Dr. Sprague was compelled by the failure of her health to resign, and then to leave the city. She lived a strong, a sweet and a noble life."

In 1896, Dr. Sprague took an extensive post-graduate course in New York City, so as to be sure of being thoroughly modern and up to date in her professional work. After giving up her Springfield practice, Dr. Sprague returned to the town of her birth; and there became an active worker in the Woman's Club, contributing many pamphlets and papers which were widely circulated. At the time of her death, she was a member of the Board of Managers of the Western House of Refuge for Women of New York. She was also a member of the New England Hospital Medical Society, the Massachusetts Medical Society, the Massachusetts Board of Registration in Medicine, the Orleans County Medical Society of New York, the G. A. R. Relief Corps, and of Rebeckah Lodge. She was also serving as Worthy Matron in the home chapter, O. E. S., in Holley, the chapter being known as Sprague Chapter in honor of its having been founded by her.

HENRY MARTIN WELLS, M.D.

Dr. Henry Martin Wells, medical director United States Navy, retired, died at his residence in New York on Jan. 12, at the age of seventy years. Dr. Wells was born in Massachusetts and entered the medical service of the Navy in 1861. In the early part of his career he was on duty in several of the most important naval engagements of the Civil War. He was first assigned to the Naval Rendezvous and Hospital at Boston, and then served for two and a half years on the 'Portsmouth" and the "Tennessee," of the

West Gulf blockading squadron. He was present under Farragut, in the actions against Fort Jackson and Saint Philip at New Orleans, and before Vicksburg and Port Hudson. In June, 1864, he was promoted to the position of passed assistant surgeon, and while serving in the Brazil squadron, from 1865 to 1868, was commissioned a surgeon. In 1880 he was assigned to duty at the Naval Observatory and Hospital, Brooklyn, N. Y., and in 1884, at the conclusion of this service, he was made medical inspector, and placed in charge of the Museum of Hygiene in Washington. In 1891, he was commissioned Medical Director, and in January, 1897, retired. Notwithstanding his distinguished services, Dr. Wells was most modest and unassuming in his demeanor. He was a man of genial disposition and quiet tastes, and after his retirement was never so happy as when fishing in the remoter districts of Maine, where he was in the habit of spending his summers.

THOMAS H. MANLEY, M.D.

DR. THOMAS H. MANLEY of New York died on Jan. 14. He was a native of Ireland and was graduated from the medical department of the University of the City of New York in 1875. He had been president of the Celtic Medical Society and of the Medico-Pharmaceutical Society, and at the time of his death was visiting surgeon to the Harlem and the Metropolitan Hospitals. Dr. Manley read many papers before medical societies and was a frequent contributor on surgical subjects, to periodical medical literature. He was also professor of surgery in the New York School of Clinical Medicine.

Correspondence.

THE TRIP OF THE "ATHOS" CARRYING DELEGATES TO THE PAN-AMERICAN CONGRESS.

CARRIBBEAN SEA, Jan. 7, 1905.
ON BOARD R. M. S. "ORINOCO."

(From our Special Correspondent.)

MANY of the delegates to the Pan-American Congress at Panama went thither *via* New Orleans. They were in luck. We who were persuaded to go in a special steamer called the "Athos," belonging to the Di Giorgio line, have not only missed the Pan-American, but will miss nearly all of the American Health Association meeting at Havana. Tuesday, the 27th of December, was the time advertised for the sailing of the "Athos" from Baltimore, and some three hours after the advertised time (noon), she was seen by the waiting delegates being towed up to the dock. A steamer more unfit for the accommodation of passengers could not be imagined; paint only a few days old, coal dust everywhere, and sanitary conveniences appropriate to the thirty-five year old tramp steamer that she was. However, it was explained to us by the fruit importing firm who owned her that she would be put in order immediately after sailing and we were all bidden to go up town and wait for the fog to lift so as to sail at sunrise the next day. The sun rose as usual, but the "Athos" still lay at the dock, and then we learned that the baker's wife was sick — he had deserted. The engineer's wife, not to be outdone, had suicided, and the owners were hunting up two men. Meanwhile the early bathers had found that the only bath tub was nearly rusted to pieces and a bath out of the question — result, a committee waited on the owners, a new one ordered and at noon the new tub appeared; the ship sailed, and temporary peace reigned. Evening came and with it a breakdown of electric lighting plant, with no one connected with the boat to fix it. But a cabin boy had studied electricity and volunteered for repair work. As a result kerosene lamps were distributed, three explosions narrowly averted, and a committee of safety appointed. Said committee of safety, headed by Dr. W. W. Keen of Philadelphia, soon found out the total unpreparedness of the lifeboats for an emergency. The tins of ship biscuit were a mass of mold. A petition was presented to the captain asking for a fire drill as one had never been held on the ship. "But," said an officer, "it will take some time to teach the crew the stations." It was held, however. Imagine a company of noted physicians being asked to take a trip of twenty-three days on a steamer whose sanitary conditions were not perfect. The less said about them the better, except to mention the fact that the sanitary steam pump broke down for a period of one day. The fan blower for the engines followed suit, losing several hours of valuable time.

But with all the lack of nearly every convenience known to ordinary ocean travel, and meals which in their nature partook of picnics, the company tried to make the most of the occasion. Here is the list of physicians: Drs. W. W. Keen, Philadelphia; A. E. McDonald of New York; Dr. and Mrs. J. S. Platt, Port Huron; Dr. and Mrs. J. W. Putnam, Buffalo; H. A. Kornemann, Newark; Ramon Guiteras, New York; Dr. and Mrs. W. W. Wishard, Indianapolis; B. Rosalie Slaughter, Washington; Dr. and Mrs. G. M. Shileth, Pittsburg; Drs. S. R. Miller, Knoxville; R. C. Tillinghast, New York; Seneca Egbert, Philadelphia; W. S. Bryant, New York; Dr. and Mrs. D. A. Shirres, Montreal; Irving L. Walker, Islip; H. L. Hammond, Danville, Conn.; Walter G. Chase, Boston; Joseph W. McFarland, Philadelphia; A. M. Simmons, Baltimore; Ernest J. Stevens, Philadelphia; W. E. Allen, Baltimore; Drs. Garcia and Ramos, official delegates of Mexico.

Now it occurred to Dr. Ramon Guiteras, the general secretary and leader of the expedition, that as we should miss the opening exercises, he might hold a mock congress on the evening of the 3d, synchronous with the opening at Panama. As Dr. McDonald, the celebrated alienist, in the course of a most witty speech said, that we had floating hospitals and floating kidneys, so why should we not have floating congresses, therefore the Pan-American was declared open on board the "Athos."

During the two following days papers were read by some of the delegates. The paper of Dr. Seneca Egbert, the hygienist, is worth more than passing notice as is also the discussion which followed. It is entitled, "Typhoid Fever in Relation to the Urban and Rural Population of the United States." From a large number of charts compiled by the Census Bureau and which were interestingly exhibited he derived the following conclusions and lessons:

(1) That although proper education in sanitary matters is essential and necessary throughout the whole country, it is especially important in so far as it relates to the causation and dissemination of typhoid fever in the localities particularly indicated in the charts (certain localities in the south and southwest).

(2) That it is the duty of the medical profession in these particular localities not only to do all they can to educate the public along these lines, but also to impress their typhoid patients with the necessity of the utmost care as to disinfection, both during the illness and long after the convalescence.

(3) That the medical practitioners should not only join hands with all progressive citizens, but be the first to urge the improvement, purification and care of public water supplies, and should like wise use every reasonable means to induce those depending upon private sources, whether in town or country, to protect themselves against the danger of infection.

(4) That it is likewise the duty of the members of the profession to help secure for their respective localities and states, uniform and satisfactory methods and laws governing the registration of vital statistics, not only because

these are direct agents for the increase of sanitary information and knowledge, but because they also always react to bring about marked improvement in the sanitary conditions of the people supplying the statistical data.

Dr. Egbert also made a strong plea for the enforcement of laws requiring registration of cases and deaths. In the discussion following, Dr. A. E. McDonald of New York, the alienist, said: "It occurs to me to suggest that any influence upon the accuracy of Dr. Egbert's tabulations arising from difference in quality and methods of care and treatment of typhoid cases as between city and country is more than offset by another element operating in the opposite direction. The tabulations are based, of course, upon reports of cases diagnosed or dying from the localities where diagnosis is determined or deaths occur. In cities many of the cases of typhoid owe their origin to residence in suburban localities, though the development does not take place until after patients' return. I opine that the number of cases will prove comparatively insignificant where the process is reversed — where the disease is contracted in the city, but manifested in the country. In the city of New York, typhoid is for the most part an autumnal disease occurring in those who have spent their summer vacation in resorts where sudden popularity and consequent influx of patrons have been in excess of necessary measures of precaution and sanitation. Of course, so far from invalidating the essayist's conclusions, this fact, if it is a fact, tends to strengthen them and to prove that typhoid is a disease of suburban rather than urban origin. Dr. Egbert's present researches are most interesting and valuable and I venture to suggest that in their continuance additional value and interest may be derived from their extension in the directions which I have indicated."

Dr. W. Sohier Bryant of New York said Dr. Egbert's carefully computed statistics prove conclusively the deductions which must come from comparison of the liability to typhoid infection in city and country. The city has the minimum liability owing to the co-operation of many individuals who provide unpolluted food and drink. Public sentiment requires a certain degree of cleanliness in personal habits. The country, on the other hand, has the maximum liability to infection owing to the isolation of ignorant individuals who must depend on themselves for unpolluted food and drink. Many more flies are found in the country in proportion to the population than in cities. Besides, in the country flies have much greater opportunity to spread the infection abundantly provided by the bestial personal habits of the population. Dr. Egbert's figures show that relative personal cleanliness and attention to the ordinary proprieties of the toilet have a marked bearing on the prevalence of typhoid fever. This is proven by the preponderance of the disease in that portion of our country where the personal habits of the people are the least cleanly.

The importance of flies in the spread of typhoid infection might be emphasized more than has been done by the preceding speakers. The danger from flies increases with the carelessness of the population in the matter of toilet. This danger is least in cities and greatest in a recruiting camp. During the summer of 1898 I had medical charge as Brigade Surgeon of a portion of the camp of the Seventh Army Corps at Jacksonville, Fla. One regiment appeared to be infected with typhoid fever nearly to a man. The cause was clearly flies. This observation enabled me to be the first to draw the attention of the military authorities to this unnoticed source of infection, which was able to give rise to an appalling epidemic. All the water for the Seventh Army Corps was piped from the city of Jacksonville, which was supplied by deep artesian wells. The milk supply was from many widely separated sources.

Dr. D. A. Shirres of McGill University, Montreal, read his paper entitled "Regeneration of the Axones of the Spinal Neurones in Man, Demonstrated Clinically and Pathologically." The case occurred in a male, thirty-five years of age, a sailor, who fell from the mast, a distance of thirty feet, producing fracture and dislocation of the tenth and eleventh dorsal vertebræ, followed by symptoms of a transverse division of the cord, flaccid paralysis, loss of sensation, abolition of the superficial and deep reflexes. He was operated on four hours after injury. There were found the above stated injuries. A complete severance of the cord was detected when the dural sheath was opened, a separation being present fully half an inch between the divided ends. The case was looked upon as hopeless, and the patient was returned to bed. At the time of operation stimulation was administered electrically to the anterior and posterior roots of the lower separated end, which gave a distinct response in the muscles of the leg, which tended to show that the lumbar enlargement was more or less healthy. For four months electrical treatment, combined with massage, was carried out, at the end of which time the reflexes had not returned. A flaccid state still remained. This went to prove Bastian's, Bruns' and other opinions, that total transverse disease of the cord was followed by flaccid paralysis. Eleven months after the accident the dural sheath was again opened, the anterior and posterior roots electrically stimulated, giving typical contractions of the muscles of the leg, three inches of a large dog's cord was transplanted and sutured to the divided ends of the cord. In two months the patient was able to detect the passage of the catheter, shortly followed by knowledge of evacuation of feces, or entrance of finger into rectum. Subjective sensations first appeared in the right foot, shortly followed in the left, extending up in a short time to knees and then the thighs. Four months after operation Achilles' reflex could be demonstrated. Three weeks later patient died from general sepsis resulting from abscess in right kidney. Histologically a mass of nerve fibers could be demonstrated connecting the two segments of the patient's cord. The lumbar enlargement and *corda equina* appeared more or less normal unless degenerations of the upper motor neurones.

Dr. J. W. Putnam of Detroit read a paper entitled: "Paranoia as it relates to Insanity."

Thursday evening at ten o'clock found us at anchor off Colon, and Friday morning at ten the delegates set off for Panama on the train, where they will arrive in time for the closing exercises. Now there have occurred several deaths from yellow fever recently in that city, officially one per day, the last victim being the wife of the secretary to the chief engineer of the canal, and I notice an item in the paper announcing the death of two Japanese acrobats in the same hospital. The inference is natural that these were from yellow fever. The British steamer "Orinoco," which sailed yesterday for Jamaica, refused many passengers because they had spent the night in Panama, and it was necessary for the writer and Dr. Shirres to obtain consular attestation that we had not spent the night there before being received as passengers. The "Athos," with many delegates to the congress at Havana, will make that city in four days and not in two as advertised. Whether her passengers will be quarantined and thus add another delay to her unlucky trip is a question.

Very truly yours,

WALTER G. CHASE, M.D.

AS TO FEES.

BOSTON, Jan. 12, 1904.

MR. EDITOR: Quite a number of cases have recently come to my notice of nurses, masseuses and others similarly situated who have felt the necessity of consulting some distinguished specialist. While most of these have been treated with the utmost kindness, courtesy and consideration, and charged little or nothing yet not a few others equally as deserving have been given short shrift, and in asking how much they were indebted, have been told that: "My fee is $15, but I will make a discount to you and call it $10."

Now when we consider that the period of active usefulness of these individuals is seldom over ten years, and that they are not kept profitably busy more than half of that time; that most of them have relatives at home more or less dependent upon them, and that they themselves have already rendered much gratuitous service to the poor, and that they are even more likely to bring a patient than to be one themselves, — in view of all these possibilities they ought certainly to be treated with the utmost leniency.

Respectfully yours,

DOUGLAS GRAHAM, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 7, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,603	470	21.02	22.52	2.81	.68	1.50
Chicago . . .	1,990,750	542	158	18.08	24.90	2.58	.74	—
Philadelphia	1,407,998	478	110	23.85	18.82	3.13	1.67	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	192	47	18.23	14.05	1.56	2.60	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	85	28	17.64	27.05	4.70	2.35	—
Boston . . .	617,950	220	41	16 81	18.18	1.36	—	.91
Worcester . .	136,925	38	14	13.90	25.80	—	3.23	3.23
Fall River .	119,349	43	15	18.60	20.93	6.97	—	—
Lowell . . .	104,402	40	10	15.00	22.50	5.00	—	—
Cambridge .	100,998	23	6	34.78	21.74	—	4.35	—
Lynn	78,875	31	9	3 2 1	32.26	—	—	—
Lawrence . .	72,848	26	9	19.23	23.07	—	—	—
Springfield .	72,090	16	2	12.50	—	6.25	—	—
Somerville .	70,413	21	5	9.52	9.52	—	—	4.76
New Bedford	68,863	22	5	9.09	22.72	9.09	—	—
Holyoke . . .	50,338	11	5	18.18	18.18	—	—	—
Brockton . .	46,601	11	2	18.18	—	—	—	—
Newton . . .	39,310	7	3	14.30	14 30	14.30	—	—
Haverhill . .	39,061	7	1	28.60	—	—	—	—
Malden . . .	37,305	10	2	—	40.00	—	—	—
Salem	37,188	20	7	—	25.00	—	—	—
Chelsea . . .	36,499	12	1	8.33	—	—	—	—
Fitchburg . .	36,335	7	—	—	14 30	—	—	—
Taunton . . .	34,577	12	1	8.33	16.67	—	—	—
Everett . . .	30,309	11	—	18.18	—	9.09	—	—
North Adams	29,201	6	3	16.67	—	16.67	—	—
Quincy . . .	26,798	12	3	25.00	25.00	—	—	—
Gloucester .	26,127	—	—	—	—	—	—	—
Waltham . .	25,795	5	1	—	—	—	—	—
Brookline . .	25,576	7	—	—	14.30	—	—	—
Pittsfield . .	21,870	8	—	12.50	12.50	—	—	—
Medford . .	21,956	7	1	28.60	14.30	14.30	—	—
Chicopee . .	21,692	7	3	14.30	42.90	—	14 30	—
Northampton	20,314	5	0	—	—	—	—	—
Beverly . . .	15,807	6	—	—	33.33	—	—	—
Leominster .	15,711	1	—	—	100.00	—	—	—
Clinton . . .	15,694	2	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,530	5	2	—	—	—	—	—
Newburyport .	14,478	5	1	—	20.00	—	—	—
Woburn . . .	14,315	5	—	—	—	—	—	—
Melrose . . .	13,819	3	0	—	33.33	—	—	—
Westfield . .	13,809	2	1	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,696	4	0	25.00	25.00	—	—	—
Revere . . .	13,609	5	—	—	20.00	—	—	—
Framingham	12,974	8	1	25.00	12.50	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	2	—	—	50.00	—	—	—
Southbridge .	11,716	1	—	100.00	—	—	—	—
Watertown .	11,575	2	—	—	50.00	—	—	—
Weymouth .	11,350	1	0	—	—	—	—	—
Plymouth . .	11,139	5	0	20 00	20.00	—	—	—

Deaths reported, 3,602; under five years of age, 968; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 698; acute lung diseases 765, consumption 366, scarlet fever 33, whooping cough 16, cerebrospinal meningitis 28, smallpox —, erysipelas 13, puerperal fever 13, measles 15, typhoid fever 33, diarrheal diseases 74, diphtheria and croup 96.

From whooping cough, New York 5, Chicago 7, Philadelphia 1, Providence 1, Cambridge 1, Haverhill 1. From scarlet fever, New York 22, Chicago 3, Philadelphia 2, Baltimore 3, Providence 1, Boston 1, Framingham 1. From cerebrospinal meningitis, New York 24, Boston 2, Worcester 1, Somerville 1. From erysipelas, New York 8, Chicago 1, Philadelphia 2, Boston 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for theweek ending Dec. 24, 1904, the death-rate was 19.4. Deaths reported 5,674; acute diseases of the respiratory organs (London) 236, whooping cough 82, diphtheria 72, measles 134, small pox 1, scarlet fever 35.

The death-rate ranged from 10.2 in Whitlesden to 32.6 in Hanley; London 17.6, West Ham 15.2, Brighton 20.2, Southampton 19.0, Plymouth 17.4, Bristol 19.0, Birmingham 20.5, Leicester 11.4, Nottingham 21.6, Birkenhead 18.2, Liverpool 19.1 Wigan 21.6, Bolton 22.8, Manchester 26.5, Salford 21.6, Halifax 22.8, Bradford 22.5, Leeds 19.8, Hull 20.1, Sheffield 21.9, Newcastle-on-Tyne 25.5, Cardiff 17.2, Rhondda 25.6, Merthyr Tydfil 17.2, Hornsey 14.8.

METEOROLOGICAL RECORD.

For the week ending January 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE		Barometer.	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
		Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.	1	29.78	46	52	40	70	73	72	W	W	10	8	O.	C.	0
M.	2	29.72	43	49	37	80	93	87	S	W	N W	9	4	O.	R.	.13
T.	3	29.67	30	41	18	100	91	96	N	E	N	18	22	O.	N.	.55
W.	4	29.70	12	18	6	96	56	76	N	N W	20	15	N.	C.	.37
T.	5	30.45	10	16	5	74	61	68	N	W	N	7	12	O.	C.	0
F.	6	30.50	19	34	4	93	98	96	N	E	9	20	N.	N.	.25
S.	7	29.58	43	52	34	100	82	91	S	E	S W	24	14	R.	C.	1.29
		29.91		37	21			84								2.89

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JANUARY 14, 1905.

R. M. YOUNG, assistant surgeon. Resignation accepted to take effect Jan. 21, 1905.

J. S. TAYLOR, passed assistant surgeon. Detached from the "Relief" and ordered to the "Ohio."

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY MEETINGS. — The Boston Medical Library Meetings in conjunction with the Suffolk District Branch of the Massachusetts Medical Society. Program of Meeting of Section for Medicine on Jan. 25, 1905: A Study of the Objective Methods of Diagnosis of the Stomach in a Medico-Surgical Clinic, with Report of Cases: Dr. H. F. Hewes. The Recent Surgical Conceptions of Non-malignant Disease: Dr. J. G. Mumford. Discussion, Dr. F. Pfaff, Dr. J. C. Munro, Dr. F. B. Lund, Dr. E. P. Joslin and Dr. C. L. Scudder.

GEO. G. SEARS, *Chairman.*
E. A. LOCKE, *Secretary.*

RECENT DEATHS.

DR. CHURCHILL CARMALT of New York died on January 8, in the thirty-ninth year of his age. He was graduated from the College of Physicians and Surgeons, New York, in 1891, and for some time was the assistant and associate in practice of the late Dr. T. Gaillard Thomas.

DR. LOUIS C. D'HOMERGUE, a retired physician of Brooklyn, N. Y., died on January 12, at the age of seventy. He was a veteran of the Civil War, and for many years occupied a clerical position in the Bureau of Vital Statistics in the Brooklyn Department of Health. At one time he was also one of the regular staff of physicians of that department.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Jan. 20, from 10 A.M. until 12.30 P.M.: Suturing Fractured Patella; Radical Cure Umbilical Hernia; Wiring Ununited Fracture of Femur; Amputation of leg; Diabetic Gangrene; Exploratory Laparotomy.

BOOKS AND PAMPHLETS RECEIVED.

Clinical Lecture on the Symptomatology and Treatment of Trifacial Neuralgia. By Charles H. Frazier, M.D. Reprint.

Report of a Case of Decapsulation of the Kidney (Edebohl's Operation) for Chonic Parenchymatous Nephritis. By James Tyson, M.D., and Charles H. Frazier, M.D. Reprint.

Outlines of Physiological Chemistry. By S. P. Beebe, Ph.D., and B. H. Buxton, M.D. New York: The Macmillan Co. 1904.

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Vol. 87. 1904.

Manual of Serum Diagnosis. By Dr. O. Rostoski. Authorized Translation by Dr. Charles Bolduan. First Edition. New York: John Wiley & Sons. London: Chapman & Hall, Ltd. 1904.

Original Articles.

THE PSYCHOLEPTIC CRISES.*

BY DR. PIERRE JANET OF PARIS,
Professor of Psychology in the College of France, Director of the Psychological Laboratory of the Salpêtrière Clinic.

The president of your society has been kind enough to invite me to present to you this evening a short review of certain studies of mine, and I am very glad indeed to do so. It is an honor for me to lay before you a specimen of the researches we are making at the College of France and at the Salpêtrière in one of the laboratories connected with Professor Raymond's service, and I shall be glad of your criticism and advice. We are all aware of the mutual enlightenment and control which come of investigations carried on in different parts of the scientific world.

I.

After several years' experience in dealing with a large number of patients tormented by obsessions, impulsions, manias of interrogation, tics and phobias of different sorts, — patients whom I have come to group together under the generic name of psychasthenics, — I have been led to consider the majority of these symptoms as secondary, and to regard as the essential feature of the disease, as the source of the obsessions, impulsions and phobias certain profounder disturbances of the feelings, the will and the perception.

It was difficult to establish the priority of these latter disturbances in certain subjects already advanced in the evolution of the neurosis and in whom all the symptoms appeared massed together. Consequently, I was led to seek out particularly the inchoate cases, in which these fundamental troubles showed themselves in an isolated manner to a high degree before the development of the phenomena which I considered, either rightly or wrongly, as secondary. In this way my attention was particularly drawn to a certain group of facts which were undoubtedly already known, but which seemed to me peculiarly suitable for the explanation of the more complex cases.

The first thing that strikes one about the patients of whom I am to speak to you, is that their mental troubles do not develop slowly and insidiously as in the case of the ordinary psychasthenic, but rather stormily, reaching a climax sufficiently quickly to constitute a veritable crisis. From this point on, these troubles are relatively uncomplicated and exert their influence almost exclusively upon the acts of the patient and upon his perception of exterior or interior reality. For these crises, affecting apparently the patient's acts and percepts alone, I propose to adopt the name "psycholeptic crises," with the conviction that the facts I have still to lay before you will justify this designation.

* Paper read by invitation before the Boston Society of Psychiatry and Neurology at the meeting held Oct. 20, 1904. Translation by J. W. Courtney, M.D., Boston, Corresponding Member of the Neurological Society of Paris.

Allow me to relate to you a few of these cases before summing up their psychologic characteristics, which, indeed, are also their essential clinical characteristics.

We will find our first cases, in fact the most clear-cut, among the psychic outbreaks sometimes occurring in epilepsy. Ottolenghi [1] has described phenomena of this sort under the name of "the twilight state of epileptics." Haskovec [2] has reported an example of it which is very interesting from our point of view. Pick [3] (of Prague) has recently described several cases of it that seem to me to fall into the same group.

I have myself called particular attention to the same sort of phenomena in various of my writings; you will find them especially discussed in a chapter of my most recent work ("Obsessions et la Psychasténie") [4] in which I endeavored to study the relations existing between psychasthenics and epileptics.

Here is a résumé of two of these observations:

Observation I. A young girl of fifteen, Hot., whose epilepsy began at the age of eight years by attacks of vertigo with deglutitory tics and who has had classical attacks of grand mal since puberty, has suffered now for some time from the following singular crises: All of a sudden she ceases work and indeed all activity; she remains motionless upon a chair and when one insists upon her getting up and doing something, she replies plaintively: "I ask nothing better than to work, but I don't see clearly — shall I always be blind?"

She came to the laboratory in this state and I was able to make out that she had absolutely no visual disturbance. We will come back to the examination of the different forms of sensibility, but I will say in passing that the movements of the eye and the sensation of these movements were no more affected than the visual acuity, the perception of colors or the field of vision. Even with her eyes closed, the patient was fully aware of the movements of the eyeballs and of the direction in which they turned. As I have shown elsewhere the only thing present during this period was an abnormal feeling relative to the reality of the visible outside world and a doubt about the existence of things, joined to the fundamental abulia.

The child came out of this state at the end of a few days through a complete epileptic attack.

Observation II. The second observation, to which I have already referred on various occasions, is perhaps even more complete than the first. Is — , a young woman of twenty-two, has had outspoken epileptic seizures since puberty, at the rate of two or three per month. On one occasion, following an abortive seizure of which she felt only the beginnings, she entered suddenly into the following condition: she saw and heard everything as usual, and here again it was impossible to make out even the slightest alteration of the special senses, of tactile sensibility or, what is more important, of kinesthetic sensation and visceral sensibility. Still, although she felt everything as usual, she began to doubt every-

thing. She no longer felt sure whether what she saw existed or not. Looking at her mother she would say: "I should like to believe that this woman is my mother, but I can't; I can't even get it into my head that this person is alive." She also had doubts of herself. "Perhaps I have lost my own self; I am not sure that I am alive. . . ." She believed nothing that was said to her, discontinued all work and was unable to fix her attention.

This state lasted four days and then seemed to disappear, at least in part, in consequence of some emotion. The patient felt better, came back somewhat to reality and was overjoyed thereat. She was still unable to do any work, however, and could not fix her attention voluntarily upon anything. On the sixth day it all began again. She again felt herself in a dreamy state and doubted everything. This time she grew impatient of her abnormal condition, experienced a feeling of malaise, of suffocation, and complained of being greatly distressed. She made futile efforts to attain to a feeling of reality and took on an interrogating mania. Had this state been further prolonged, the patient would have reached the full development of the "disease of interrogation and anxiety." But the seventh day brought an epileptic attack and the situation was relieved. After the seizure she returned to her normal condition, and the bizarre state above described recurred only three times during her life, although she continued to suffer from the major form of epilepsy.[5]

We see, then, occurring in epileptics these sudden mental troubles, which involve the perception of the outside world and of self, with transformation of the entire personal activity.

II.

Such observations are fairly rare concerning epileptics properly so-called or, at least, have not frequently been made; for the study of the mental state of epileptics leaves much still to be desired. On the other hand, they are very common when we turn to the consideration of the class of patients I have grouped together under the name of psychasthenics. Doubtless, in many cases, the mental state which characterizes them, with its abulias, inability to fix the attention, doubts on the reality of things or of self, and all the secondary troubles which come from them, develops slowly and insidiously. In the train of an infectious disease, a confinement, a fatigue or an emotion, the mental state undergoes a gradual degradation and the patient is unable to tell you just when his trouble began. But one must not think it is always so. Much oftener than is generally supposed, there is a definite beginning and, as certain patients have told me, the trouble comes upon them suddenly "like the blow of a stick" and they are rapidly changed.

I might recall to your attention many earlier observations in this connection, where the same fact was mentioned without being emphasized. You may remember that celebrated case of Ball's: "Our patient," says this author, "was employed in a bank; he worked well and steadily until suddenly one morning in June, 1874, about 10.30 o'clock, he became conscious of a sudden change in the appearance of objects; they entirely lost for him the element of reality." Here is the patient's own story of his condition: "In June, 1874, I felt almost suddenly and without any pain or giddiness, a change take place in the way I saw things. Everything looked odd and strange, although forms and colors were not lost." This trouble gradually disappeared, but began again five years later in the same sudden way and in a more serious form: "In December, 1880, I felt myself dwindling, disappearing; after a time nothing was left of me but my empty body with its same old form. Since that time my personality has completely vanished — everything around me has grown more and more strange until now I not only do not know what I am, but I can't get a mental grasp upon the thing they call existence, reality."[6]

For further details of the case, such as the loss of volition, the annihilation of activity and the feeling of automatism, I will refer you to Ball's original work.

I, myself, published some time ago some curious and absolutely comparable cases, the most remarkable of which I will venture to detail to you. A young girl of eighteen, Bei —, of neuropathic family, be it said, had clandestinely maintained illicit relations with a young man of the neighborhood for some time, without any disturbance of her mental health. One day her eye fell upon a paragraph in a newspaper, which told the story of two young lovers whose conduct had brought about the ruin of their families. The story seemed to fit her own case exactly. It upset her completely and she felt as though she had received a blow upon the head. This feeling as of a violent blow upon the head is very characteristic; it has been observed repeatedly in patients whose mental condition has been suddenly upset. In her emotion, Bei — felt the need of getting outdoors. Once in the open, she viewed herself with amazement, for she experienced a most peculiar feeling. Beyond a certain discomfort in the back of the head, she had no sense of bodily illness; she saw clearly, heard well, could move without difficulty and was keenly aware of her movements; she went about looking for herself under the impression that she had disappeared and that things of the moment no longer had anything to do with her personality. From that time on she incessantly repeated the same thing: "But where am I? What has become of me? It isn't I who walk and talk and eat. I lack something to give me real existence." And so she went on, incapable of making up her mind to anything, crippled in her activity, lost to all notion of time, oblivious to present existence.

With your permission, I will refer you to the published study of this and another similar case — that of a young man of twenty, Ver — for data

on the various forms of sensibility, particularly the muscular and kinesthetic, which were found absolutely intact.[7]

To these older cases it would be easy to add a very large number of new ones, in which the circumstances were identical. Many psychasthenics of the obsessed or the phobic types, whose trouble now seems chronic, tell you with great precision that their whole trouble began suddenly, at a definite time. Here, for example, is the case of a young woman of thirty-three, Dob —, a typical agoraphobe of many years' standing. Time will not permit me to give you her present trouble in detail, but she stubbornly maintains that she knows precisely the moment it all began. "I was," she says, "a child like another, simply very timid. One day when I was about ten years old, I was sent on an errand to a nearby store. I didn't expect to find anybody there except the proprietress, but when I got in I saw two people talking together and it made an impression on me I can't explain. Suddenly, violently and without any warning whatsoever, I felt a sort of dizziness and everything went queer. It seemed as though I could no longer do anything, as if I could no longer control myself and was going to do something silly; I was like one in a dream. The first time this didn't last long, at least, not like the whole feeling, but I have never since been like my old self."

Those of you who have done me the honor to wade through my works on the obsessions may perhaps be familiar with a person I call John, — a character, I venture to say without hesitation, well worthy of your acquaintance; in fact, the most astonishing embodiment of ties, mental crotchets, phobias and obsessions imaginable. It is very curious indeed to hear him tell with a precision that never falters the story of the onset of his miseries. When he was about fifteen years old he was given to masturbation. One day, after performing the act, he experienced a feeling so remarkable that after the lapse of twenty years he still speaks of it shudderingly. He was very tired at the time and the orgasm had been brought about only with great difficulty. "He felt something give way in his head [always the same "blow upon the head" idea] and then the whole universe seemed misty. Things appeared to him to lose their reality, as though he had suffered a tremendous degradation of his strength and of his vitality. He could no longer accomplish any act that called for the slightest degree of attention; he could make no effort of attention; in fact he wasn't capable of any definite feeling. In the wake of these phenomena there followed a perfect horde of terrors, anxieties, ruminations, etc. One might easily group about these two cases a large number of others in which the disease was ushered in by a similar crisis.

Along with these patients you will find a much more numerous cohort who have had in the course of their lives, not merely a single definite crisis of this sort, following which they never fully recovered, but a great number of such crises punctuated by intervals of almost normal existence.

Séglas had already laid stress upon the appearance of certain characteristic troubles which presage "crises of obsession." These periods manifest themselves as an attenuated form of mental confusion. For two or three days there is an exaggeration of certain neurasthenic symptoms; the patients don't know themselves; no longer find themselves as before. The attention is very defective, hard to fix, easy to tire; the memory is sluggish and untrustworthy. Motor volition is affected and abulia betrays itself by an incoercible apathy.[8]

I have myself called special attention to these states, which I call the psychasthenic periods. Save in certain exceptional patients who are continuously for years a prey to obsessions and phobias, it is easy to observe that these incidents are not perennial, but have a beginning and an end. In certain periods of relative health it is obvious that the same facts, the same thoughts, may arise without in any way provoking the incidents to which they formerly gave rise. There is evidently at certain times a predisposition to the obsession and one which is characterized by a great number of mental troubles independent of the obsession itself. I dwelt strongly on this point in my discussion of the case of Kl — in whom for several days disturbances of sleep, headaches and abnormal feelings precede and announce the obsession: "I feel that I am as nothing; I have entirely lost my will-power, and anybody can do with me as he wishes, for I have become a mere machine; I can neither read nor understand; . . . people seem queer and I want to get angry with them, their heads look so odd. . . . I grow strange, incomprehensible to myself, and I ask myself questions upon a perfect horde of things." In this patient, Kl — , events take place with a certain gradation, although the attack often begins at night by a peculiar headache and, at times, develops quite rapidly. But there are other patients in whom exactly similar phenomena come on abruptly and reach their maximum in a few hours. I have seen it so happen in dipsomaniacs. D —, a man of thirty, thus states his case: "From time to time it seems to me as if I suddenly give out. I am no longer good for anything; I can't even understand what I read. Everything gets confused and strange . . . and this condition," he adds, "is unbearable." In my opinion it is simply to escape from it that he seeks an excitation in drunkenness, and the dipsomaniacal impulse is entirely secondary, as indeed is demonstrated by its late appearance, long after the onset of the crises of depression.[10]

One might also cite the case of Das —. While in a state of almost normal health it suddenly comes over her that she is dying, that she has been buried alive: "I am in a lethargy, I dream my life, I am asleep in a coffin, I am not alive nor are the people about me; I am not sure that what exists is quite real. . . ." She doesn't go on complaining of this feeling long, for in a short time there come on phobias of deglutition and obsessions relative to handkerchiefs and corks she thinks she has swallowed.

It would be useless to take further time upon a large number of other cases of a similar nature, which could easily be got together. Those already given are sufficient to demonstrate to you how frequent this type of crisis is in psychasthenics, either at the début or in the course of their disease.

III.

All these crises are singularly alike and I have often been surprised to hear patients of entirely different social levels employ identical expressions and hit upon the same bizarre metaphors; all of which shows how exactly alike all their feelings are at bottom.

The best classification I can offer you is based upon the duration of this mental trouble and upon its evolution. From this point of view there would be two clinical types — the first with a sudden onset and termination, the second also sudden in its onset but terminating quite imperceptibly, after running an almost indefinitely prolonged course. As the first form is the most curious and the least well known, it may not be amiss to give you the history of Mar —, a young girl of twenty-seven. This patient is at first glance very perplexing; she complains of constant severe vertigo. "I seem to faint away," says she, "three or four times a day." Now these crises, to the onlooker, are very singular; there is no real vertiginous state, no more does the patient faint away; she has no convulsive movement and presents none of the phenomena of anxiety. In a word, it all goes on in the patient's feelings. She groans, ceases all activity and interests herself not at all in exterior things: "It seems to me that I go away and come back to myself; everything grows small around me, I grow small myself. I become totally different; I grow so small that soon I won't occupy any space at all." Then as we inquire into this change of stature, she goes on: "No, there isn't any change in volume, my hand remains just as large as ever, but it's less real, less alive, it's a dream hand. It's as if I stood outside of life. Others are interested in the things I see, not I; it's like a sort of review. Things seem to be done simply to be seen and touched, but not to be lived with." (Note that there is never any real anesthesia in the case and, as she says, that this expression of littleness is pure imagery.) Her clearest cut impression is of losing her personality, of dying, of vanishing, of being annihilated: "My hands are no longer mine, my feet do not belong to me. That's why I no longer walk, talk and act. One day I stopped eating because my mouth was no longer mine and what I ate ceased to be real."

The most extraordinary thing about this young woman, a thing I have rarely seen so well marked, is the shortness of the duration of this state. After a quarter of an hour, or twenty minutes at most, she grows calm and resumes all her activities, saying that things are again quite real and that she knows what she has to do. If it were not that she retains the fear of relapsing into the same condition, which fills her with horror, she would be absolutely free from trouble. She is not even in any sense amnesic, for she remembers with the utmost clearness everything she has been through and felt.

About these strictly typical cases, one might range psycholeptic crises of the same sort, which are short-lived and seldom give rise to secondary phenomena. Obviously this is the form of the disease that most closely approaches epilepsy, and a form which, if I be not mistaken, I have seen most often in genuine epileptics. The other variety will be made up of crises of longer duration, which may last for years. In the case of John, for example, the crisis seems to have come on at the age of seventeen, and has existed now more than fifteen years with the same characteristics. It is the commonest form in psychasthenics and the one which is oftenest the point of departure for phobias and obsessions.

IV.

It is very difficult to define and especially so to interpret phenomena we understand so incompletely, and I have no illusions on the value of the theories we are able to furnish by way of explanation of them. We should simply array the symptoms which seem to us characteristic, in order to reach a general conception, a point of departure for future studies.

It is primarily essential, in my opinion, to put in evidence the negative peculiarities of these crises, which are too often overlooked in hypothetical interpretations. In the first place there is no delirium properly so-called, and not even any mental confusion; the patient expresses himself clearly and reasons intelligently. One even notices an increase in the memory for the past and in the subtlety of the reasoning faculty. This characteristic is important for diagnosis and should be considered in the discussion of the intellectual theories of obsession, for it shows us that both the obsession and the delirium are far from being primary.

A second negative characteristic of still greater importance is the absence of any actual motor trouble. The subject moves perfectly, in every way; in fact, his movements are exaggerated. It is important in this connection to examine into the movements of the sensorial organs, which are perfectly within the subject's control, a point to which I called attention above in speaking of the movements of the eyes. In like manner the tendon reflexes and even the cutaneous are normal throughout.

Negative characteristic number three is also of considerable importance. This consists in the fact that the different forms of sensation, at least as far as we can determine by the means at our command, seem to be perfectly intact. The discussion of this point is delicate and important; I must refer you to the study I have made of it on several occasions and can give you at this time only my conclusions.[11] In a small number of cases, when the disease has lasted a very long time, I have been able to make out a

certain degree of analgesia or rather a certain disposition on the part of the patient to neglect agreeable or painful impressions; for example, a certain indifference to heat or cold rather than a real anesthesia. But aside from these few exceptional and ill-defined facts, it should not be forgotten that all forms of sensation are preserved without exception. I do not speak merely of the special senses of sight and hearing, but also of cutaneous, muscular and visceral sensibility. Really, it is only too easy to connect the bizarre feelings expressed by patients apropos of their personality to alterations of the cenesthesia; the affirmation of this relation has been so often made by all philosophers and all the older alienists that I could not help making my first investigations in that direction. Hence I pray your attention to the great pains I was at in my first observation — that of Bei —, for example, to verify the condition of the muscular sense. I employed every means to determine that in fact this person perceived the movements of her limbs and that she appreciated differences in weight almost as well as I did myself. Even the movements of the eyes, when made with closed eyelids, are accurately appreciated by this subject, and she knows very well in what direction her glance is turned. Visceral sensibility is very hard to measure and it is perhaps on this account that we are inclined to explain all symptoms possible on the ground of visceral anesthesia. All I can say is that my patients have been rigorously questioned and examined on this point and that all have appeared to feel hunger and thirst and all abdominal needs in a normal way. I earnestly beseech authors studying similar cases to ascertain with precision and gauge these various forms of kinesthetic and muscular sensibility before voicing explanations which are over-easy.

Indeed it appears that we might easily explain the troubles presented by our patients by applying to them certain very simple philosophic notions which were formerly very clearly expounded by Maine de Biran and more recently by Ribot. The feeling of personality, said these authors, is made up mainly of the *ensemble* of our visceral and muscular sensations; moreover, the sensations of the movements of our members are intermingled with all other sensations in order to add the cognizance of the position of objects, of their resistance and their reality. Since our patients complain of a doubt of self and of the reality of objects, one might say simply that theirs is a profound disturbance of cenesthesia, that is to say, of their visceral and kinesthetic sensations. One might even go farther: it is to-day admitted, at least for a time, that cenesthesia with its constituent sensations and movements is subserved by certain sensorimotor regions of the cerebral cortex. Hence one may hastily conclude that the psycholeptic crises are caused by trouble suddenly arising in these regions, and the whole disease assumes a much simpler appearance. Adopt this temporary explanation if you find it more convenient; it is really of no great consequence. I have been striving to focus upon the clinical syndrome, not to discuss its hypothetical interpretation. But permit me simply to point out to you that disturbances in the psychomotor sphere are ordinarily made manifest and open to diagnosis only through such symptoms as paralyses of various kinds and visceral and kinesthetic anesthesiæ, whereas in our patients none of these phenomena has ever been observed; hence the above explanation, while perhaps convenient, is still purely philosophic.

V.

The positive characteristics which are conspicuous in the psycholeptic crisis and should characterize it, may be divided into two groups: First, the peculiar feelings expressed by the patient and the disturbances of action.

In mental diseases we are compelled to give heed to the feelings of the patient, even when we can't very well explain to ourselves the *raison d'être* of such feelings. The frenzied ideas of patients have been carefully analyzed, but it seems to me that the same work has not been pushed to an equal extent with reference to the obviously vaguer feelings described by these psycholeptic subjects. I have been reproached for being unmindful of descriptions, divisions and distinctions in analyzing the bizarre feelings of these persons, who always have the sensation that what they do is insufficient or unfinished, who are under the constant impression that they are dreaming or who complain so queerly of no longer being capable of any emotion and suffer because they do not suffer. These reproaches hardly apply, for in psychic phenomena as well as in physical matters, knowledge can be gained only from countless observations made with precision and properly classified. One does not find fault with a naturalist who describes innumerable varieties of a species of mollusc or a genus of plants. We also must arrange our catalogue of psychologic facts, and there can be no harm in describing the subdivisions of the feeling of unreality and the different varieties of that of erroneous apperception. Such a labor is indeed often more useful than the premature construction of theories upon phenomena half understood.

In the matter at hand, I have been struck by one peculiarity invariably present in the feelings experienced during the crises. It is always a question of a fundamental feeling; action, perception and emotion are incomplete, unfinished; the mind does not carry out its processes to their normal completion; it stops short of its former attainments in the development of phenomena. To express this fundamental idea I took the liberty to coin the expression "feeling of incompletion." This expression seems to me more accurate than the term "feeling of imperfection," which wrongly implies a desire for a perfection above the average; it also seems to me more correct than the term "feeling of insufficiency," for it is not a question of any insufficiency, but rather of the absence of any definite and complete termination. The idea expressed by the word "complete"

seems to me the principal one and ought to enter into the designation of these feelings expressed by patients apropos of their perceptions and emotions as well as of their actions.

In certain ones these feelings seem to be particularly *en rapport* with a group of facts. For example, the first patient I described to you complained particularly of not seeing objects in their normal aspect; it was above all a question of a disturbance of the feeling of reality in visual perception. The second patient seemed to present the disturbance both in the visual and auditory perceptions. Others, singularly enough, have special difficulty in a category of perceptions which are little understood — the perceptions of other people, the sort that lead us to think that we have to do with thinking beings like ourselves and not with inanimate objects. In certain crises one patient will say to me: "I no longer see living beings, I am surrounded by people who are dead; you do not appear to me to be alive; physical objects continue to be almost real."

There might be room for discussion as to the part played by ideas in such language. I cite it simply as an example of the systematization in the feelings of incompletion. Even in these cases it is not difficult to see that the alteration is always more general. Questioned about other phenomena to which they have called no attention, patients admit that they really do have feelings of queerness and strangeness with regard to them, and it is often easy to discover the causes which have had the attention in such or such direction and determined the particular systematization.

The majority of subjects, moreover, are far from talking in this way; on the contrary they are disposed to complain of everything. All their perceptions lack reality, just as all their actions are incomplete; in a word their feelings of incompletion are much more general.

The second important group of symptoms takes in, according to my idea, the disturbances of action. The alteration of movement itself or of the sensation of movement is not the essential factor in these crises, as has been claimed by the authors above mentioned; it is rather the alteration of action, which, in my opinion, is not at all the same thing.

In this domain of action we might go on describing almost to infinity all sorts of disturbances of the will, the resolution and the attention. If the crisis is somewhat prolonged, there may be observed every variety of abulia, irresolution, slowness of action, feebleness of effort, disorder of action, incompletion; also the absence of all resistance, and particularly the complete suppression of certain especially difficult actions, as is observed in the social or professional abulias. At times it is not only the social and professional activities which are annihilated, but every sort, and the subject remains inert indefinitely. Other disturbances are especially connected with the disappearance of the attention, with the incapacity to take in new situations. The description of all these disturbances would lead us into the analysis of many details which I consider indispensable in a natural history of psychic phenomena, but which it suffices to summarize here.

These groups of negative and positive symptoms which we have just summarized enable us to differentiate and diagnosticate the psycholeptic crisis. The absence of genuine motor disturbances, of all paralysis, of all alteration of the reflexes and of sensibility, permits us to rule out most of the graver cerebral lesions. The disturbance of the attention bears only upon present or recent events and leaves intact the reasoning power and the memory of the past, a fact which allows us to eliminate the states of mental confusion and stupor. The differentiation from the hysteric crisis might cause greater perplexity were it not for the observed fact that after the psycholeptic form the patient retains a very clear memory of what he has been through. He may have no knowledge of outside events to which he has not paid attention, but he can describe with great readiness the impressions he has felt. In the hysterical crisis amnesia plays a much greater rôle and the mental state is by no means the same. There is no feeling of incompletion and the abulia is not the same; furthermore the patient's activity is dammed up in a given direction rather than suppressed. It is a question of mechanism, of suggestion and of the limitation of the field of consciousness, a combination which brings about a different kind of mental alteration.

I will not dwell upon the diagnosis between the mental outbreaks of epilepsy and what I call the psycholeptic crisis. In many cases I believe this diagnosis to be difficult, for the phenomena bear a strong resemblance to one another and, as we have just seen, may be encountered in the same patients. It may be said, however, that in the genuinely epileptic cases the mental disturbance is in general more profound, the intelligence disturbed to a greater extent and the consequent amnesia more marked.

VI.

Unquestionably it would be more important to get together all the characteristic features of the psycholeptic crisis in a general theory which would aid in a better understanding of them. In the present state of our understanding of the workings of the central nervous system such an accomplishment seems to me impossible, and if I take the liberty to offer you in conclusion some general reflections, I beg of you not to consider them as an explanation, but rather as a résumé of my observations, which may be of some service in guiding further researches. For a similar purpose I wish to call your attention to certain researches of mine upon what I have ventured to call "the functions of the real."

It seems to me evident that the operations of our minds, be they as they may, can manifest themselves in two different ways, susceptible, let it be understood, of innumerable intermediary degrees. At times these operations deal almost unproductively with conditions which are enor-

mously simplified. These are the operations bearing upon abstract ideas, general ideas, imaginary conceptions and representations, and even upon the reproduction of past events. At other times these same operations work in a way that seems to me quite difficult, *i. e.*, where they bear upon events which are present and real and produce a knowledge of complex events which are actually taking place in the universe at the moment; also where they produce reactions in us which are likewise perfectly real acts, that is to say, acts capable of determining modifications in the world as it exists.

Psychologists have long contended that these operations of the mind are identical in the two cases, that it is always a question of grouping and associating images in a systematic manner. The hypothesis which I suggest for disposing of a large number of pathologic facts is that these two classes of operations are not at all identical from a physiologic standpoint. The first are simple and easy for two reasons: primarily because they are a repetition of syntheses previously achieved, and secondarily because they deal with abstract elements few in number and enormously simplified.

The second, on the contrary, are difficult, not only because they demand new syntheses, but particularly because they act upon rich and infinitely complex elements. This difference might even be expressed, if one so desired, in anatomical terms. The first or more simple operations would call for the operation of only a small number of cortical centers and particularly for the centers for sensorial images; the second would demand the intervention of much more numerous centers, and in particular the association of sensitivo-motor centers with the preceding, a more difficult association, in which the association centers, such as they are accepted to-day, would have a more important rôle to play.

There is still another way of viewing this opposition between the two groups of operations. As is well known, the most difficult functions are those last formed in the evolution of beings. These are the still unstable functions not yet registered in well-differentiated and thoroughly specialized nervous centers. This being so, is there any more difficult function than that of the present action? At every moment of life there is a situation which is new, at least in some aspect; life never absolutely repeats itself, and every action is in part a new adaptation. The notion of evolution must not be applied solely to the past; the process goes on incessantly; it is present every moment, and at every moment we are constructing organs and functions which will be automatic later on. The adaptation to the present moment is the last goal of all evolution. That is why this action presents a difficulty altogether peculiar and may be considered one of the higher operations. If one were very desirous of formulating an anatomical translation of these psychologic conceptions, one might also say with Hughlings Jackson, that it is a matter here of bringing into play a higher center which is in a formative stage and excitable only with difficulty. In a word, for all these reasons and regardless of the point of view which may be taken, I propose to divide psychologic operations into two groups: the one, a higher group, which calls to a certain extent for a greater tension of the nervous system and includes the functions of the real; the other of lower order and calling for less tension, to embrace the abstract, indifferent functions, bearing upon the past and the imaginary rather than upon the present and the real. Such an hypothesis, justified by extensive observation allows us, I believe, if not to explain, at least to summarize the complex disturbances which we have just reviewed.

Events take place as if the patients had momentarily lost the faculty of effecting the higher operations of high tension, while preserving the power to bring about properly and even with exaggeration the lower or low tension operations. Contrast the development of the imagination in such patients, their memory and reasoning powers, with their feebleness of will and inability to give attention to things of the moment. Have you noticed what a markedly retrospective type of life they live? They are obsessed by the past, they have ways of thinking which recall childhood, previous civilizations;[12] or they seem to have become incapable of living the life of the moment. Reverting to the other form of expression, one may say, events take place as if in these patients the higher centers which preside over the complex and recently formed association of sensorial and motor centers could no longer enter into activity, while the lower and simpler association centers, centers long formed, alone performed their functions.

Viewing the matter thus, one might say that there is, in the crises above described, a lowering of cerebral activity, a fall, so to speak, of several degrees, which brings about the change described, and manifests itself to us by feelings of incompletion and by all the disturbances in the patient's present activities.

It is to reduce this interpretation to its lowest terms that I have proposed to designate these singular crises by the term " psycholeptic crises." A similar term, " phenolepsy," was used by Meschede of Koenigsberg in 1894, in a somewhat different sense; of this I have retained only the central idea of psychic downfall, and have tried to define this notion by the various reflections I have placed before you.

I ask your pardon, gentlemen, for closing this clinical recital with considerations which are obviously very hypothetical and which have no other object than to conveniently summarize certain complex facts and facilitate their study.

It goes without saying that our present knowledge of nervous function is insufficient to enable us to know what modifications in the seat, the force, or perhaps the rapidity, of nervous vibration correspond to these psychic degradations.

I believe that for the present our task should be confined to the study of these diverse oscillations of the mental level among which we place psy-

cholepsy. We must not forget that we find comparable phenomena in the normal and especially in the pathologic forms of sleep, in dreams, in exhaustion, and particularly in the emotional states. The psychologic and physiologic study of these facts is far from finished, and it appears to me indispensable for the explanation of the phenomena presented by our patients. Hence if there be anything of importance in what I have brought to your attention this evening, it is the clinical description of certain curious mental troubles which I have endeavored to compare and connect, in order to show you that the mental degradation which paves the way for the obsessions and which must even play a part in the genesis of certain deliria, is not always effected gradually, but may come on abruptly and constitute a genuine psycholeptic crisis.

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GASTRO-ENTEROSTOMY.

(A PRELIMINARY NOTE.)

BY JAMES G. MUMFORD, M.D., BOSTON,
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OPERATIONS on the stomach were undertaken fearfully and carried out timidly for many years. We have not yet outgrown that mental attitude. Apparently the feeling has been, if you open the digestive tract you are doing a dangerous thing; do as little damage as possible and get the visceral wounds closed as soon as you can.

Experience with operations for malignant disease of the stomach first opened our eyes to the fallacy of this over-cautious view. There are two operations usual in the case of gastric cancer, — partial gastrectomy and gastro-enterostomy. At first sight one would suppose gastrectomy to be far the more formidable, but operators have learned that in the long run, gastro-enterostomy for malignant disease results in a higher mortality than does gastrectomy.

Setting aside the consideration of, and in the case of " benign " disease, looking for a radical operation for stomach drainage, for an operation which shall return the parts to an anatomical condition essentially normal, one sees that some form of gastro-enterostomy must be done. Finney's operation is valuable, for it returns the parts to a condition approximating the normal, but Finney's operation is not always applicable. Rodman's partial gastrectomy, combined with all cases of gastro-enterostomy, returns the parts essentially to the normal, but Rodman's operation seems needlessly radical for routine practice.

None of the other operations, as ordinarily performed, regularly restores the parts to anything like a normal condition.

The object of this communication is to urge an operation I have practiced of late, an operation elaborated out of the well-known procedure of Chaput. As originally done by Chaput, that operation consisted of:

(1) Posterior gastro-enterostomy with the long loop; (2) Entero-enterostomy; (3) Section of the afferent loop between the two anastomoses.

So far as it goes that operation is very satisfactory, but it does not restore the parts to their normal relations. Vicious circle sometimes ensues, the pylorus may resume its functions; the new gastric stoma may close.

I advocate a fourth step, — invariable, routine, (4) Section of the pylorus. That adds nothing to the risks; vicious circle is rendered impossible; the duodenum, now side-tracked, becomes a mere duct, a continuation of the common bile duct.

Doubtless this method of operating is not original, and it would be preposterous to describe it as a novelty; but since it offers a certain solution of the vicious circle problem, since it leaves the parts much as nature intended and since it is easy of accomplishment, I am urging it as a *routine* measure.

THE PROPHYLAXIS OF SYPHILIS.*

BY WM. G. MACDONALD, M.D., BOSTON,
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AT the last Charitable Conference held at Boston, one of the speakers said something to this effect: " We will never accomplish much along some lines of charitable work, until we recognize the fact that certain diseases exist, and are willing to discuss them and their consequences as openly and as freely as we now argue other and kindred matters." These were not his exact words, but they express the lesson he intended to teach.

Public health and public charity cannot be disassociated. They walk hand-in-hand, and deal always with the same individual. Almost the whole of charitable work comes down to the preservation of health, the care of the sick, or the burial of the dead. Our hospitals are managed by health experts, but are founded, endowed and supported by charity. Yet, on the one question of venereal disease, charity closes its delicate ears with its daintily gloved finger tips, looks inexpressibly shocked and a little bit bored, and refers the whole matter to public health. The excuse is that these diseases are self-inflicted and can only come about by the depravity of the individual. Even if this be true, what matters it? When the Samaritan saw a stranger lying by the roadside, naked, bleeding and senseless, he did not ask who started the fight. Not at all; his every effort was devoted to the care of the sick man. But, in point of fact, the charge is not

*Read before the Catholic Charity Conference, Oct. 29, 1904.

FIG. 1. — Operation of Chaput: (1) Gastro-enterostomy with the long loop. (2) Entero-enterostomy. (3) Section of the afferent loop between the two anastomoses.

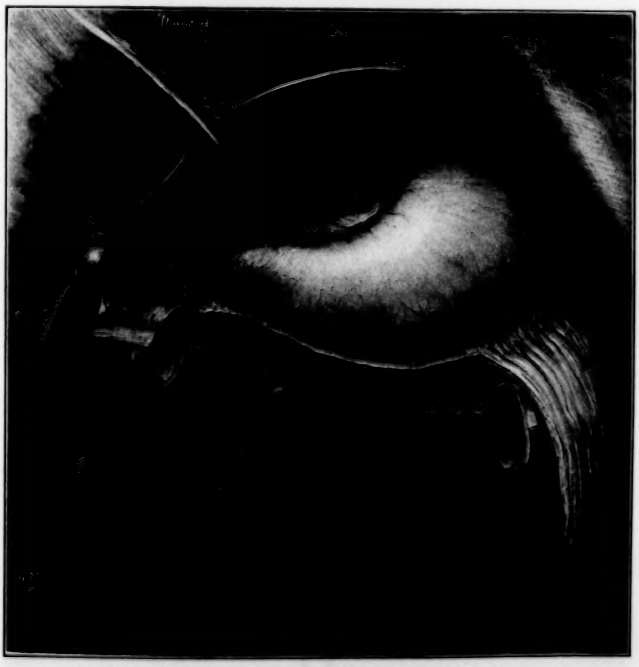

FIG. 2. — Operation recommended: (1) Posterior gastro-enterostomy with long loop. (2) Entero-enterostomy (3) Section of afferent loop between the two anastomoses. (4) Section of the pylorus.

true. The cases of syphilis innocently contracted are almost innumerable.

Many epidemics of syphilis have been reported, in which the first offending cause was most innocent. Dr. Commenge has tabulated a large number of such cases, of which a few may be cited.[1] For instance, Riccordi reported in 1863 the case of an abandoned infant taken to nurse; this child communicated syphilis to twenty-three individuals. At Uboldo, in the same year, another abandoned child transmitted the disease to nineteen persons, including its nurse. At Capistrello, syphilis was propagated by a child at the breast, and through lack of knowledge on the part of the physicians and victims, lasted for eight years. At last, in 1867, it was recognized and investigated, and found to have already afflicted more than three hundred persons. In our own country, Dr. Buckley published in 1894 a treatise called "Syphilis in the Innocent," in which he cites a large number of cases, and places especial stress on those which resulted from vaccinal accidents. In these, however, the remedy was easy, and the practical disuse of humanized virus has eliminated them. In France, Fournier, probably the best syphilographer in the world, concluded that at least one in ten cases of syphilis was extragenital,[2] and this did not include the large number of married peoplewho might contract the disease genitally but innocently. Fournier collected a number of cases caused by unclean instruments in the hands of physicians.[3] He cited one instance in which a specialist of Paris had contaminated as many as seventy persons. Tattooing has had many authenticated victims. Razors, lead pencils, pipes and cigars, many others. The practice of passing around water in the theaters is an abominable one. I have seen an usher, whose mouth was full of mucous patches, passing about these glasses. He probably sipped when he was thirsty. Last summer I treated a young girl who had a chancre in the mouth, innocently contracted. She was a bundle girl in one of the large stores, and presented herself with a chancre on the tonsil, probably caused by virus received into the mouth from the edge of a drinking vessel, and caught by the protruding gland on its way down the throat. She had well-defined secondary symptoms when I saw her. I warned her very carefully about kissing, about using the same cup as others, etc., but did not name the disease to her mother or herself. Some weeks after, she reappeared with an infected friend — a chancre on the tongue, and no history. After some groping, my first friend asked innocently if lending her chewing gum would be any harm, and said that I had neglected to warn her about that!

In the face of such facts, can anyone doubt that there should be some education in syphilis? that there should be, even among ordinary people, a clear understanding of the nature and dangers of this disease? Why should not philanthropists discuss it openly in their conferences, even though the audiences were of both sexes? A disease so insidious and so treacherous, and so capable of entering into and contaminating the purest and best-behaved of families, sparing none from the grandsire to the swaddled infant, should be at least understood, so that its first advances might be recognized and checked. Once understood, and discussed without fear or shame, effective measures for its suppression will be taken.

Some few months ago, Professor Lesser of Berlin reported the second conference, held March 6, 1904, of the German Society for Combating Venereal Disease.[4] This society was founded in October, 1902, and already numbers some four thousand members. At this conference, it was particularly noticed that, notwithstanding the great strides made by the medical profession in the treatment and cure of venereal diseases, yet on account of the reluctance of the people at large to speak of them, but little had been done for their prophylaxis. It was then decided that, in the German Society Educational Pamphlet, there should be set forth, in a simple and comprehensive form, the nature of venereal diseases, their dangers, and the methods of guarding against them. In this connection it was voted that there should be set down the methods of protection which might be employed in extra-conjugal intercourse. This latter recommendation would, of course, be at utter variance with our line of thought.

The sanitation of prostitution was also considered, and Professor Lesser urged strongly the founding of free institutions for the treatment of venereal diseases. In conclusion, he very wisely counselled a slow and careful advance. Old prejudices and beliefs were not to be pushed away, but rather so worn down by gentle, constant friction that the light behind might be continually more perceptible.

In France, the inscription of prostitution is an old story. With the inscription, comes the regular physical examination, and removal to a hospital, if venereal disease of any kind be found. This works fairly well, but does not, by any means, cover the whole ground. In the first place the number of uninscribed prostitutes is very large, and secondly, a perpetual warfare is being waged against these venereal hospitals because they are prisons. Some of our most eminent authorities on syphilis have constantly objected to them on purely ethical grounds.

In the British Islands the so-called Lock Hospitals may be found, scattered here and there, in garrison towns. As far as I have seen, they are of little service in the prevention of syphilis, since few if any of the inmates are in the acute, contagious stages of the disease. Those that I have noticed were soiled and dishevelled old remnants that were long ago taken from the bargain counter. There is no inscription in British cities, at present, and, therefore, no official way of discovering the diseased prostitute. If

[1] La Prostitution Clandestine à Paris, 1897.
[2] Traité de la syphilis, Fournier, 1898.
[3] Bulletin Médical, 15 et 19 mai, 1895.
[4] Journal of Cutaneous Diseases, June, 1904.

there were, I question whether the English public would allow compulsory detention on account of bodily illness.

In a conversation the other day with Mr. John B. Martin, Penal and Charitable Commissioner of Boston, a man of much experience in these matters, and one of broad and well-balanced views, he suggested a plan which would well cover a part of the field, and which is not as yet in use so far as I know. His suggestion was as follows: that, whenever, hereafter, a man or woman be convicted of an offence which may call for either fine or imprisonment, he or she should be physically examined, and if venereal disease be found, then the punishment must be by imprisonment. This would be farther-reaching than would seem at first glance, since a large number of those arrested for petty offences are not only the very ones who are liable to be suffering from syphilis, but, also, the ones most careless about its transmission.

It should also be the routine duty of every physician of an institution, whether it be jail, almshouse, or prison, to thoroughly and carefully examine each new inmate so that proper isolation might be secured if necessary. This examination should take in every part of the body, and the trustees or superintendents of such institutions should provide suitable rooms, instruments and attendants for the purpose.

The standing armies of Europe have proven to be about the only communities from which comparative statistical estimates could be made, and Dr. Commenge has considered this subject rather carefully.[5] He finds that, for instance, in the five years from 1888 to 1892 inclusive, there was a yearly average in the English army of about two hundred in the thousand taken into hospital for venereal diseases; while in the French army the proportion was but forty-four to the thousand, and that there were about thirty-seven English syphilitics to the thousand, averaged yearly, with only eight or nine French. Researches into the statistics of the German, Russian, Austro-Hungarian and Roumanian armies show that the proportion of disablements under the British flag was greater than that of any other European nation.

From these premises, Dr. Commenge draws the conclusion that the regulation of prostitution is the great safeguard against syphilis, but he forgets many important accessories. The English army is drawn from a hard-headed Saxon or Celtic yeomanry, not much given to immoral practices. The young men are kept in as much ignorance of venereal disease as the young women. Suddenly they enlist, are sent to some of the English colonies, and are at once launched into semi-savage communities either without perceptible morals, or worse still, debauched by the traders of all nations who have preceded the army. Is it any wonder that these young men contract syphilis? Is it any wonder that, having contracted it, a sense of shame compels their silence until, unwittingly, they have transmitted the disease to one or more of their comrades? In other words, the English youth suffer on account of a lack of proper education in matters which are only too familiar to their continental brethren.

At the time of Dr. Commenge's article, the American army was not to be considered. We had a handful of sturdy fellows, living in a few scattered garrisons, and subject to all the inclemencies of our northwest winters. Immoralities had little chance among such folk. Now, however, we are facing a different problem. With the acquisition of new territory comes the demand for an enlarged army, and instead of the quiet, moral influences of the northwest, we must send our youth to tropical countries, to come in contact with indolent, semi-civilized, unclothed peoples. We should not send them uneducated.

Now, what should we do for those at home? We should teach them, in as kindly and proper way as possible, the dangers, near and remote, of improper sexual intercourse, and not leave this important part of their education to bitter experience and the lying pamphlet of the traveling quack. Suppose, for instance, the emergency association included some consideration of syphilis in its regular lectures given to policemen, firemen and others. If to this were added an enumeration of the many innocent ways in which syphilis might be contracted, together with an insistence that false shame should be thrown aside, and that the sufferer should apply at once for medical aid, much good might be done. It is of the utmost importance that lectures on this subject should be given to our militia by their regular medical officers, and that a thorough understanding of their teachings should be demanded of the men. And this, especially, before any regiment could be considered eligible for foreign service.

As to the question of proper isolation, each community must look out for itself. In Boston, a few years ago, the city government appropriated a small sum for the building of a hospital for chronic, contagious diseases. Nothing was done, however, toward the actual, practical pushing of the work, and our present mayor dropped the whole scheme because he very wisely considered that the sum appropriated was too insignificant to be of any use, and he did not care to plunge into unknown financial depths for the sake of a new enterprise, when so many of the existent departments and institutions needed much more money than he was able to spare.

Long Island, to be sure, has a well-furnished hospital, but Long Island's institutions are primarily and always almshouses, and its inmates must be stigmatized as paupers. It is impossible that an institution working under laws which are intended to discourage applications for admission should be of much service in the controlling of contagious disease.

No one can enter the Long Island Hospital unless he or she has a pauper settlement in Boston, either acquired from parents, or through a residence of five years consecutively, during which time at least three years' payment of all state,

[5] La Prostitution Clandestine à Paris, 1897.

county, city, or town taxes must be made.[6] This, naturally, bars out the great majority of active syphilitics who are essentially birds of passage, and destroys the whole object of a contagious hospital, namely, the protection of the community. As a matter of fact, like the lock hospitals of England, the Long Island hospital treats, for the most part, those who are beyond the active and contagious stages of the disease.

It would seem possible, however, to reconstruct our present system so as to separate absolutely the hospital from the almshouse. They could exist as two separate and distinct institutions, under absolutely different names and managements, even though they occupy the same island.

In point of fact, according to the law of 1902,[7] no person under treatment for syphilis, or other chronic contagious disease, and, consequently, a source of expense to town or commonwealth, can be deemed a pauper. Under this law, then, the pauper settlement act would be of no consequence to the individual. Circulars might be addressed to physicians requesting them to send such of their patients as might be a menace to the public health, to this hospital. Its geographical situation might do much toward answering objections as to bodily detention, as, on an island, there might be much bodily freedom with little danger of absolute departure.

The general public would need to be educated to the fact that we here possessed a desireable place for treatment, but as in the case of the South Department of the City Hospital, this knowledge would come by a little gentle and judicious management, and a real advance would be made in the prophylaxis of syphilis in this community. Other communities would soon profit by our example.

THE ETIOLOGY OF PULMONARY TUBERCULOSIS CONSIDERED IN RELATION TO ITS THERAPEUTICS.*

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OUR acceptation of the theories with regard to the causative relation of certain germs in the production of particular diseases has led us too far afield in some instances. The exciting cause has been exalted almost to the point of sole cause in cases in which the predisposing factors are most important. This is particularly true of tuberculosis.

While most disease germs require none or but indifferent modification in the physiological processes of the body for their growth, the tubercle bacillus is a notable exception to that rule. There are few known pathogenic micro-organisms that require such definite conditions for the maintenance of their vitality and proliferative capacity. Though the limitations of favorable environment are narrow, clinically, it appears that a slight physiological deviation of a particular kind is sufficient to meet the requirements of the parasite. Proof of this is seen in the large per cent of recoveries found post-mortem in which the disease had not been suspected during life. The favorable nature of their environment having changed the bacilli had perished leaving a cicatrix as evidence of the feebleness of their struggle against an approximately normal resistance.

It is asserted by various observers that from 50 to 98% of all persons have tuberculosis at some period of life. As the mortality rate of the disease is about 15% of mankind's total death-rate it is at once seen that by far the larger part of those in whom it develops recover without treatment or without any directed to the real cause of the disorder. Again, it appears that the tubercle germ has a very slight hold upon life, and can only reproduce itself under very certain and particular conditions. It has been experimentally demonstrated that the greater number of bacilli contained in phthisical sputum and in the cavities are incapable of further growth.[1]

The difficulty of growing vigorous cultures from bacilli contained in pieces of old tissue infested by the organism indicates that many of those so situated have lost their vitality. Even when cultivated under favorable conditions and at a proper temperature upon dead media and shielded from all deleterious influences, they die within a relatively short time.

Furthermore, it has been shown that the bacilli of greatest virulence are more difficult to cultivate and that their growth is scantier than in the case of bacilli of less virulence.[2]

Finally, sufficient has come to light from the investigation of the bio-chemistry of the bacillus and analysis of the therapeutic resources that have shown decided influence over its control, to prove that the conditions for its multiplication are limited and transitory.

That so large a per cent of recoveries follows the simple procedure of keeping patients constantly surrounded by an air supply of absolute purity is evidence which, in the present state of our knowledge, admits little doubt that the consequences of impure air as a result of deficient ventilation is the underlying cause of pulmonary tuberculosis.

It has been demonstrated again and again that the remedy which dispels the sallow skin, pale face, cold feet and hands, weak pulse, feeble power of digestion and assimilation with the attendant loss of nerve-energy, all of which are prime characteristics of deficient oxygenation, is the same that arrests tuberculosis when applied sufficiently early and continued under proper conditions sufficiently long.

Herein have therapeutics cast a ray which has illumined and shown the primary, the pregermic cause, the physio-chemical condition without which tuberculosis practically does not exist. The catabolism of suboxygenation is resolved from dyscrasia into disease by such even and con-

[6] Revised Laws, Chap. 80.
[7] Acts of 1902, Chap. 213, Section 2.
* Read before the Medical Society of Virginia at Richmond, Oct. 18-21, 1904.

[1] Nothnagel's Encyclopedia, p. 49.
[2] Journal of Medical Research, July, 1901.

stant gradations as to establish a cause and effect relation.

No advancement made in the study of tuberculosis to the present, except, indeed, it be the discovery of the bacillus, so positively points out the principal factor in its etiology as does the degree of success which everywhere attends the open-air treatment of pulmonary tuberculosis when properly carried out.

It is now known, though not generally appreciated, that the symptoms of the devitalization induced by deficient absorption and distribution of oxygen are those of incipient tuberculosis. The only notable difference relates to the rather constant temperature phenomenon and the possibility of a slight cough in the last-named disorder.

This view of the origin of tuberculosis is not new for it was foreshadowed by Hippocrates, advocated by Celsus, and has for no considerable period since the latter's day lacked for a small and indifferent sort of support. Still the notion, for it hardly amounted to more, was of little practical value until Brehmer's day when in 1859 he began the actual demonstration of what was with him a theory, by inaugurating the open-air treament. The results of his method surpassed any plan that had been previously pursued. The plan was slow of adoption, probably for the reason that it was at variance with preconceived ideas relative to the fancied necessity for the even temperature of which history speaks.

Little progress had been made in the general adoption of this plan until within the past few years, though happily it is growing in favor. For this advancement we are largely indebted to Dr. Trudeau who was its American pioneer and is its present chief exponent.

Dettweiler, a pupil, supplemented Brehmer's method by adding the rest cure or enforced inactivity in the open air. His results were more brilliant than his master's. So it appears that each of these men who were the originators of the most successful treatment of tuberculosis, looked beyond the possibilities of the then unknown bacillus and directed the energy of their efforts to the eradication of a fundamental degeneracy of which the disease was the final expression.

Notwithstanding our results of to-day are somewhat better than those of the first advocates of the method, which we of the present follow, they have not improved to the extent hoped for from knowledge imparted by our acquaintance with the bacillus.

I would not be understood as meaning to belittle the part taken by the bacillus in its destructive rôle nor do I favor relaxing in the slightest degree any effort for the collection and destruction of phthisical sputa. I even hope for the time when the tubercle germ will do as some others, namely, produce a substance which will destroy the quality of the soil which renders its own growth possible.

But I do believe it is incumbent upon us as a present duty from which there is no turning away, to go beyond the findings of the microscope and consider as a reason for the universal prevalence of the disease the incalculable extent of physical degeneration of medium degree, due to the simple lack of clean, pure, unbreathed outdoor air, on account of which grows this great scourge.

POINTS PERTAINING TO THE MANAGEMENT OF DIABETIC AND NON-DIABETIC GLYCOSURIA.

BY HEINRICH STERN, M.D., NEW YORK.

(Concluded from No. 3, p. 74.)

(6) THE RIGID ANTI-DIABETIC DIET.

THE anti-diabetic regimen is instituted for three reasons: (1) To re-establish the glycolytic function of the various organs; reduction or withholding of sugar-forming ingesta tend to recuperation of this function (2) to prevent the hyperglycemia which gives rise to numerous secondary phenomena, and (3) to prevent loss of body energy during the digestion of material useless for the diabetic economy. In the anti-diabetic diet the sugar-forming substances must be reduced to the extent necessary to cause entire cessation of the glycosuria, or if this proves impossible, to bring about its diminution to the lowest attainable degree.

While the glycosuric phenomenon may disappear or become materially reduced after the temporary reduction or withdrawal of the carbohydrate in many instances, it becomes necessary to entirely withhold the starchy ingesta for more protracted periods, or even to curtail the amount of proteid substances in instances of the graver type of the diabetic affection.

Speaking of the rigid anti-diabetic diet, we must, therefore, remember tnat this does not only mean the complete withdrawal of the carbohydrate material from the food, but also the reduction of the albuminous nutritives. Fatty substances are the only ingesta which do not, as a rule, produce sugar. Hence, as far as *the glycosuric condition per se* is concerned, there hardly ever seems to stand any contra-indication in the way of the ingestion of fatty substances. Moreover, as the caloric value of fat is a very high one, it being 9.3 for each gram, it may serve admirably as a protector of the body albumin in case the carbohydrates are withheld from the nourishment.

The rigid anti-diabetic diet must be so regulated that loss of body substance does not ensue at all, or if it ensues, that it must be kept at a minimum. In lean diabetics, it should be our prime endeavor to keep the patient in nitrogen balance, and to prevent all possible loss of body material. In the obese diabetic, there will not be any actual harm done if the egress of nitrogen surpasses its ingress for a short period, and if the individual loses some kilograms in absolute body weight. Of course, if this can be prevented, so much the better, for I do not believe that an obese diabetic, or for that matter any obese individual, affected with a disease, while under fire, that is, while the dis-

ease is active, should lose in body weight. Reduction of body weight should always be a voluntary one and should never be the result of a wasting disease.

The deficit of calories due to withholding of the carbohydrates and that due to the reduced ingestion of proteids, must be supplied by fatty substances.

There is no doubt that the amount of food valued at from 35 to 40 or 45 calories per day and kilogram of body weight, which is the accepted standard of the German authors in the treatment of diabetes and other conditions of malnutrition, often exceeds by far the actual demand of the diseased organism. While overfeeding would *a priori* be indicated in cases of under alimentation, we have to remember that many individuals in this condition are declining bodily, because they cannot digest, elaborate and assimilate the normal amount of food stuffs. To tax such an organism with a nutriment of the high caloric value as advocated by the German clinicians would certainly produce ill results on many occasions. This is especially the case when the high caloric value of the food must be furnished by fats, as is essential in the diabetic. We may accept it as a fact that a diabetic resting or leisurely occupied does not consume more nourishment than a normal individual performing medium or hard work. I have found that such an individual may thrive well on from 30 to 35 of total ingested calories, and on from 23 to 28 of assimilable calories per day and kilogram of body weight.[7]

Granting that the diabetic needs 28 calories per day and kilogram of body weight, and knowing that he may be kept in nitrogen balance by from 1.2 to 1.5 gm. of albumin per kilogram, therefore, 21.85 to 23.08 calories have to be supplied by fat substances. A diabetic weighing 70 kilograms should therefore ingest per day of albumen 344.4 to 430.5 calories, and of fat 1,529.5 to 1,615.6 calories, which together amounts to 1,960 calories.

Whenever the rigid anti-diabetic diet is to be instituted which, by the way, should be done in every case of apparent diabetes for a limited space of time,— in those cases which are not characterized by extreme leanness of the patient and in whom acetone bodies are not found in the urine,— it should not be done abruptly, that is, the carbohydrates should be slowly withdrawn and the amount of proteids (if a reduction appears necessary) should be gradually diminished. It is absolutely essential that this point be borne in mind. Furthermore, it must never be forgotten that a rigid diet, although it may be pursued with the best of results for months and months in certain instances, always remains a temporary measure only. It should be continued two or three weeks after the cessation of the glycosuria, or if this does not vanish entirely, until it becomes certain that it cannot become completely eradicated. Under no circumstances should it be continued if it is followed by a marked decrease in body weight.

There are two means at our disposal to enhance the value of the rigid diet in the very grave cases. The one is by the complete exclusion of the albuminous substances every third or fourth day, and by substituting therefor green vegetables, poor in carbohydrates, and into which are incorporated large amounts of fat. The other consists in instituting a fast day every week, second week or third week on which the patient should be abed and partake of light broth and some whiskey or brandy only.

(7) THE DIET IN THE PRESENCE OF ACETONE BODIES.

It is the consensus of opinion of many observers that a rigid anti-diabetic diet should not be instituted in the presence of acidosis. My personal experience does not entirely tally with that opinion. We know now that the acetone bodies do not originate from albumin, neither from disintegrating body albumin, nor from ingested proteids. That diminished carbohydrate feeding is not the sole cause of acetonuria as maintained by von Noorden, I have already shown on another occasion.[8] Acidosis, hence, can be only the result of two factors: the acids are either of synthetic production, or they are due to fat decomposition. I am of the opinion that acidosis is often the result of the last named factor. This will be evinced by the following case:

The patient, forty-five years old, has been a diabetic since his thirty-ninth year. Between March and May, 1903, his affection, which had been of a comparatively mild type for five years, began to assume a grave character. On Feb. 22, 1903, while under the diet which he had pursued for the past three years, and which contained 150 gms. of carbohydrates per day, he weighed 147.5 lbs., and his urine contained neither glucose, acetone nor diacetic acid. On May 10 his weight had declined to 146¾ lbs., and his urine (the amount of which had not been ascertained) exhibited 1.5% glucose, but the tests for acetone and diacetic acid showed neither. On May 25, while under a rigid meat-fat régime, he excreted 4% or 90 gms. of glucose, but no acetone or diacetic acid. On June 8, the diurnal amount of excreted glucose had diminished somewhat, but there were traces of acetone, and the ferric chloride reaction was fairly pronounced. His weight was 145¼ lbs. About June 25 he consulted Professor von Noorden at Frankfort, who informed me that he had found 2.3% or 56 gms. glucose, and 1.5 gms. acetone in the twenty-four hours' urine, and that the ferric chloride reaction, although faint, had occurred. While abroad, he underwent treatment at Carlsbad and at some other places.

Upon his return, on Sept. 13, he weighed 144 lbs., his urine contained large amounts of glucose and some acetone, but no diacetic acid. On Sept. 3, he excreted 181.6 gms. glucose, a small amount of acetone, but no diacetic acid. On Sept. 25, after two days of green vegetable and fat (butter) diet, as advised by von Noorden, he

excreted but 83.4 gms. glucose, but over 2 gms. acetone and also some diacetic acid. On Sept. 29, his weight had declined to 143½ lbs., the glucose output to 54.97 gms., the amount of acetone had not materially changed, the ferric chloride reaction was positive. Keeping the patient under a very rigid diet (complete exclusion of carbohydrates diminished amount of albumin, no egg albumen, only the yolks) he weighed 145½ lbs. on Oct. 5, and had excreted during the previous twenty-four hours about 43 gms. glucose, and traces of acetone; diacetic acid was not detected. Withdrawing all fatty substances except the yolks of eggs, he weighed, on Oct. 12, 148¾ lbs. The glucose output had diminished to 38.18 gms.; acetone had entirely disappeared. Diacetic acid was not present.

Olive oil added to the diet at a later date was followed by a slight output of acetone; addition of butter, tried on various occasions, caused pronounced acetonuria. Beef fat, in the amounts ordinarily employed, remained without influence upon the acetone excretion. The patient weighed 152½ lbs. on Nov. 30, and passed as little as 10 gms. glucose on Jan. 10, 1904. His urine remained entirely free from acetone until the end of February. Since that time, small amounts of acetone as well as of diacetic acid are met with occasionally. His present weight is 149¼ lbs. Since the middle of October, 1903, his diet consists of meat and fish and their natural fat substances, of gelatine, green vegetables, almond cake, coffee and some brandy. The daily caloric deficit is made up by the yolks of eggs, of which he had as many as fourteen per day. These are incorporated into gravies and vegetables, and added to the coffee and brandy.

A similar experience in some kindred cases prompts me to propound the following diet for diabetes complicated by acidosis:[10]

Sunday. — Albuminous substances to the amount permitted in the rigid diet. Fatty substances from 12 to 15 calories per kilogram of body weight, yolks of eggs and ox fat preferred. Green salads and some green vegetables. Alcohol, if necessary, about 0.5 cc. per kilogram of body weight. Coffee or tea without milk. Water or carbonated waters *ad lib.*

Monday. — Green vegetables, boiled in water, prepared with salt, pepper or other spices, into which are incorporated the yolks of eggs. From 10 to 30 yolks should be consumed per day. Fennel or aniseed tea, also common breakfast tea or coffee without milk are permitted. No liquors. Waters *ad lib.* Bed rest, if necessary.

Tuesday. — Essentially the same as on Sunday.

Wednesday. — The same.

Thursday. — Like Monday.

Friday and Saturday. — Like Sunday.

(8) THE DIET IN THE PRESENCE OF KIDNEY AFFECTIONS.

Kidney affections associated with chronic glycosurias are mostly secondary to the latter. They frequently occur late in the disease of which glycosuria is a symptom. I am of the opinion that these kidney lesions are, in the great majority of instances, of independent production, that is, that they would have also occurred if a glycosuric condition had not been present. Of course, a kidney lesion may occasionally be the result of the continuous irritation exerted by the uron loaded with glucose and other irritating substances.

The eventual association of a kidney affection with glycosuria need not seriously be taken into account, when an antidiabetic regimen is to be instituted. It should be our endeavor to first counteract the glycosuric condition which, as stated before, may occasionally stand at the foundation of the kidney disease. It will be found that the proteid diet, even if continued for a few months, will not often exert that untoward influence upon the condition of the kidney which we are wont to believe it has. Furthermore, the end products of the fatty substances which latter predominate in the rigid anti-diabetic diet, do not aggravate an existing kidney lesion. Again, some diabetics advanced in years, those in whom kidney affections occur more frequently than in younger individuals, exhibit considerable tolerance for milk or milk preparations. If the degree of the glycosuria is low, and if the patient's weight remains stationary, milk may be admitted to the dietary. We should never forget that we want to treat the patient and not a disease, or the symptom of disease. Concerning the albuminuria due to kidney lesion we know that a diet of eggs yields less urinary albumin than one of meat. We also know that a regimen consisting of eggs and milk often produces less albumin than an exclusive milk diet. Fish and alcoholic beverages have the tendency to increase the degree of the albuminuria.

While the diet does not play that important rôle in the treatment of kidney diseases that it does in that of diabetic glycosuria and while there is, as a rule, no special need to consider the kidney lesion, if an anti-diabetic diet is to be instituted, we should see that this is as bland and non-irritating as possible.

(9) THE MANAGEMENT OF THE DIABETIC IN THE COMATOSE STATE.

There prevails an idea that diabetic coma is the most frequent termination of diabetes. This assumption, however, is unfounded. A search made by me of all the original death certificates of individuals who have died from diabetes mellitus in the City of New York during 1899, revealed the fact that of a total mortality, from this disease of 202, but 60 cases, *i. e.*, about 30%, terminated in coma.

We will not err very much by maintaining that a goodly number, probably even the majority, of these 60 cases of coma, were not of the specific diabetic type. Not every comatose state associated with diabetes is by virtue of this association diabetic coma. A number of authors have given us statistical data concerning the frequency of coma, but have omitted to discriminate between the specific diabetic coma and that which

is the result of complications co-ordinate or intercurrent with diabetes mellitus.

The comatose condition in connection with diabetes is pseudo-diabetic only, if it does not exhibit the specific features which will be described hereafter.

Exhausting diseases, like phthisis pulmonum and hepatic cirrhosis, frequently terminate in coma. When one of these maladies, or a septic infection occurs, together with diabetes, and death supervenes by coma, the latter in most instances, is of the atypic, that is, the non-dyspneic type. The coma is most always of the latter type when affections of the central nervous system concur with glycosuria or the diabetic condition.

Chronic interstitial nephritis or pyonephritis does not infrequently occur, together with diabetes. Uremic coma differs from true diabetic coma, in its non-dyspneic character.

Nevertheless, that which is considered true diabetic coma is not characteristic of diabetes alone. The designation "dyspneic coma" should replace that of "diabetic coma" on account of its more pointed significance and as it does away with the idea that it occurs in diabetics exclusively.

In the peculiar dyspnea, which is the characteristic symptom of typical coma diabeticum, the patient breathes with difficulty, although there is apparently no obstruction to overcome. Every respiratory muscle is strained. The thorax expands perfectly in all directions. The breath is drawn in perfectly, intensely, deep and long; it is expelled also perfectly, but the expirations are of shorter duration. The breathing intervals gradually become shorter and sometimes more superficial, particularly in cases where the patient has been unconscious for some time. At first the circulation remains unaffected, and cyanosis is rarely present. The co-ordination of extreme systemic asthenia with the vigorous respiratory movements is a striking and singular clinical picture.

The pulse, which is weak and regular, does not exceed one hundred at the beginning of the coma, but cannot always be exactly ascertained in the fully developed dyspneic coma on account of its extreme weakness.

The body temperature is very low from the beginning of the typical coma and, as the comatose condition develops, it gradually declines farther; a temperature of 31° to 33° C. (87.8° to 91.5° F.) is not unusual. If, in the prodromic stage, or at the onset of the coma, there is an increase in temperature, it is always caused by a complication. In most cases the pupils are dilated, although, occasionally, they may be more or less contracted, and pupillary reflexes may continue to exist until the comatose condition is completely established.

The stage of somnolence is nearly always preceded by gastro-intestinal disorders or febrile affections, headache, anxiety, mental excitement, vertigo, delirium, jactitation, pains in the abdomen or in the hypochondria, or other disturbances. Some of these symptoms may even be observed in the comatose condition. Similar disturbances, though not so well pronounced, are often precursors of the characteristic dyspnea.

During the prodromic stage the amount of excreted urine is rather increased, but diminished as soon as the coma sets in. Urine excreted during diabetic coma generally contains an excessively increased percentage of ammonia, and albuminous substances are nearly always present just prior to and during that state. Numerous casts are frequently found in the coma of true diabetes, but the amount of urinary albumin does not stand in any relation to the number of casts. These casts are of the true type and possess a characteristic appearance; their outlines are smooth, short and broad; they are pale, hyaline and often decidedly granulated. Leucocytes or kidney epithelium rarely covers them. They occur even frequently in the prodromal stage of the coma. Diacetic and oxybutryic acids are frequently present in the urine.

This symptom-complex may even occur in apparently mild cases of diabetes, and diabetic coma may be produced by the most insignificant causes, such as digestive disturbances, long-continued proteid-fat diet to the exclusion of carbohydrates, constipation, exertion, both bodily and mental, local inflammations and abscesses, chloroform anesthesia and similar causes. A patient of mine had three attacks of genuine diabetic coma, in every instance the result of over-eating.

The comatose condition may set in without any warning or indication that could be relied upon.

Death generally ensues within twenty-four or forty-eight hours after the full development of the dyspneic coma.

I shall not dwell upon the treatment of those comatose conditions which occur during the course of diabetes, but which do not exhibit the specific dyspneic character. Such comatose states must be treated in accordance with the affections of which they are the consequence.

Treatment of dyspneic coma should be dietetic, medicinal and adjuvant. The dietetic treatment, as a matter of course, is always one of a prophylactic nature, for when the comatose state is fully established, food, excepting, perhaps, some occasional liquids, cannot be administered. Maintaining that the oxybutyric acid and the other bodies calling forth acidosis are frequently the result of fat decomposition, we should withdraw the fatty substances other than the yolks from the nourishment and replace them for the time being by carbohydrates, even if the intensity degree of the glycosuria becomes augmented. Milk and its preparations may be permitted, and plain water, or alkaline mineral waters, may be freely ingested.

The medicinal treatment should principally be concentrated upon the prevention of the coma. For this purpose sodium bicarbonate in doses from 15 to 30 grams a day should be administered the moment the ferric chloride reaction

ensues in the urine. As this becomes more intense, or if the diacetic acid continues to be present, the dose of sodium bicarbonate should be gradually increased, even to 50, 100 and more grams a day. A combination which has given me better results in the prevention of a fatal issue of acid intoxication than sodium bicarbonate alone is the following:

℞	Sodii Bicarbonici		
	Calcii carbonici prec., aa	iss	45
	Sodii pyrophosphorici	iiss	10
	M.		

From 10 to 50 grams of this combination should be taken every day in plain or carbonated water for a protracted period.

When coma seems imminent, and during the comatose state, from 2 to 6 grams of precipitated calcium carbonate, suspended in water by the addition of 25% its weight of acacia, and administered every two, three or four hours by enteroclysis, has proved very useful in my hands.[9]

The administration of the calcium carbonate by the rectum should always be preceded by a high and thorough lavage of the bowel.

In fully developed dyspneic coma, sodium bicarbonate, even if introduced intravenously, remains without influence upon the condition. Calcium carbonate administered in the manner just mentioned, in my experience, is the only drug which has actually dispersed instances of well-progressed dyspneic coma.

Among the adjuvant treatments I would like to mention venesection, which has prolonged life in a few instances of dyspneic coma under my observation. Among the other, massage to the abdomen and to the cardiac region may serve a good purpose. Oxygen administration may be resorted to if the actual comatose condition is seen in its incipiency.

(10) HYGIENIC MEASURES IN THE TREATMENT OF DIABETIC GLYCOSURIA.

All hygienic measures tending to support the deteriorating organism of the diabetic must be called into play in the management of this affection. Besides his nutrition, on which we have already dwelt to some extent, the atmosphere, the climate, the place of living, the mode of occupation, the habiliment, etc., should be adapted to the specific requirements of the diabetic.

The very first thing which ought to be done with the patient when and wherever circumstances permit it, is to send him to another soil and to another climate.[1] The more the latter differ (within the proper limits) from those whence he came, the more pronounced and the sooner will their beneficial influence be exerted upon the patient. That which is sound and healthy in an organism acclimatizes itself more readily than that which is degenerating within it. The process of acclimatization is the most powerful stimulus which can be exerted upon animal matter; it influences not merely one organ and one function, but the whole system and all the vitality. The changed external conditions bring about a regeneration, and if an eventual deterioration has not progressed beyond a certain point, the regained vital energy will, in many instances, do away with functional disturbances and ward off or even prevent molecular death.

I am in the habit of using air baths with my patients. At an ordinary temperature they sit undressed in their rooms or, what is still better, they perform gymnastics to promote an increased activity of the skin; only in exceptional cases do I let the patient expose himself to purposely heated air, but in every instance chilliness should be guarded against. Warm water baths or steam baths and massage are also valuable accessories in the stimulation of perspiration. Both exposure to the air and gymnastic movements, and the warm water and steam baths are excellent promoters of sleep.

Warm underclothing, in the heated as well as in the cold season, is essential during all the stages of diabetes. The cutaneous surface should never be allowed to become chilled, so that the perspiration which is so essential for the well-being of the diabetic, is not interfered with.

The mode of occupation of a diabetic is a serious matter. He must do something; he must not be left to himself to brood over his condition. He must, however, not take to a vocation which is physically or mentally exerting him, or by which he will forego his night's rest. He should select a business or a trade not demanding much physical strength, nor extraordinary will power, nor great vital resistancy. The first day of the week should truly be a day of rest to him. He should arrange for two periods of vacation: one at the height or the middle of the summer, and one in mid-winter. Both should be as long as possible so that the changed surroundings may become remedial factors. In the summer time a stay in a wooded mountain region is to be preferred; in the winter time a sojourn in southern climates often prepares the diabetic organism for future endurance and energy. In grave cases of diabetes the patient must retire from work and devote his whole life to the amelioration of his condition.

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Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D., BOSTON.

ASCENDING RENAL INFECTION.

J. A. SAMPSON [1] in a long article publishes the results of his own experiments, and also the conclusion he has arrived at by a study of the literature of the anatomy, physiology and pathology

up the ureter. Among other interesting deductions made is the following: That portion of the upper wall of the ureter which forms part of the bladder wall, that is to say, the V-shaped piece lying back of the orifice as seen in a longitudinal section of a distended bladder, he calls the ureteral valve. Pressure on this valve by the fluid distending the bladder brings the anterior wall of the ureter in contact with the posterior wall and so occludes the lumen, thus preventing reflux up the ureter. When this valve is injured by inflammatory processes the ureteral orifice remains patent and the valve cannot close the ureter. This is very clearly shown by a longitudinal section of the vesical portion of the infected ureter from a patient dying of unilateral ascending renal infection.

FUNCTIONAL KIDNEY TESTS.

Voelcher and Joseph [2] presented a new method of functional test for the two kidneys separately without ureteral catheterization or the use of the segregator. It consists in injecting a stain, indigo carmine into the body, which stain is eliminated exclusively by the urine, is non-toxic and passes unchanged through the body. The technic preferred is to inject into the gluteal muscles 4 cc. of a fresh, warm 4% solution made with .4 gm. of indigo carmine in 10 cc. normal salt solution. Twenty to thirty minutes after injection a cystoscope is inserted and even a novice can see the jets of strikingly blue urine emerging from the mouths of the ureters.

Differences in the behavior of the two clouds from the two ureters can also be noted.[3]

Mortality of kidney operations has diminished from 28% in 168 cases to 8% in 98 cases since the introduction of the new functional kidney tests in Kümmell's clinic.

Kapsammer [4] says that ureteral catheterization may bring about a reflux polyuria which may disturb the cryoscopy tests. He believes the normal average amount of urine is 5 cc. to each kidney per minute, and that in performing these tests the amount of urine should be observed and compared with the normal average amounts passed. He thinks that cryoscopy is not of great diagnostic value, but that it serves to suggest that something is probably wrong if the freezing point is a good deal below normal.

EPIDURAL INJECTIONS FOR INCONTINENCE OF URINE.

Cathelin [5] cites the experience of the world after four years of trial with this method of treatment. He says its harmlessness is established by the fact that in over two thousand cases there have been no mishaps. Of the incontinent cases 75% have peen cured and others have been improved. Almost never has the result been entirely negative. The technic remains the same and Cathelin believes the results obtained are due to the traumatism and compression of the injected fluid.

SURGERY OF NEPHRITIS.

Bakes [6] says Edebohl's operation would attain its object better if the decapsulated organs were wrapped in omentum or were pushed down between the roots of the mesentery. He adopted the former alternative successfully in a case in which he removed the capsule by the Edebohls' method and then drew up the omentum through a slit in the peritoneum parallel to the upper edge of the ascending colon. The omentum, after it was drawn through, was wrapped about the entire kidney. Hall and Herxheimer [7] published the results of their experiments upon dogs and rabbits. They conclude that while they cannot produce an interstitial nephritis and so reproduce the actual conditions observed in man, there is, so far as they can tell, no reason for doing the operation in cases of degenerative nephritis. Asakura [8] concludes on the contrary, that a new capsule and new vessels are promptly formed; and Stursberg [9] found equally favorable results, and says the new vascular formations found apparently had a distinct effect on the renal blood supply. Thelemann [10] experimented upon dogs. He admits the formation of a new capsule, but denies any permanent vascular change for the better. Gifford, N. H.,[11] gives the following summary of his experiments on animals:

"Following the decapsulation of kidneys in rabbits, in normal dogs, in dogs with induced nephritis, in dogs with infarcted kidneys and in dogs with normal kidneys but with additional work thrown upon them, I find the following conditions:

"(1) In all my cases of two days and under and in my controls the entire thickness of the capsule had been removed over two thirds of the surface by the operation of decapsulation.

"(2) There is a certain amount of intracapsular tension in undecapsulated kidneys, normal or with nephritis, as shown on removal of capsule.

"(3) There is an immediate increase in size of decapsulated kidneys persisting up to one month at least; afterwards, a decrease to approximately normal size complete at end of six months.

"(4) There is congestion, moderate in degree, most marked in the intertubular blood vessels in cortex, lasting three to five days after the operation.

"(5) No histological change in the renal epithelium follows the operation of decapsulation of kidneys.

"(6) A new capsule, very vascular, at first, two to four times thickness of old, is well marked at end of eight days. At end of six months it returned to approximately the normal thickness and vascularity. The new capsule arises chiefly from the connective tissue cells of the intertubular connective tissue, but in part from the retro-peritoneal connective tissue which is preseptent in the new bed of the kidney.

"(7) No new blood vessels are formed which anastomose with those of the kidney.

"(8) The increase in size is due primarily to

the increase in blood supply, possibly resulting from the removal of the capsule."

Haven Emerson [12] gives an admirable résumé of the experimental work done up to date (except Gifford's which he had apparently not seen) and then describes his own experiments. He concludes that decapsulation may and usually does cause the interstitial nephritis; that new blood vessels are formed in the adhesions, but that they are of temporary existence and later are occluded by cicatricial contraction. The ultimate result is a new capsule like the original, except in its tendency to persistent and uneven contraction. He believes that the possibility of obtaining more than a temporary improvement in a kidney by decapsulation seems at present slight.

HYPERNEPHROMA.

Bierring and Albert [13] report five cases and then devote the bulk of their paper to the secondary manifestations of these tumors. They assert that these secondary growths occur chiefly in the liver, lungs and bones and arise by metastasis or by implantation; that metastasis by way of the renal vein is by far the most common and that extension by the way of lymphatics is rare, but not unknown, as had been previously stated by Thorndike and Cunningham [14] and they cite cases to prove this statement. They also cite one of their cases in proof of the fact that these secondary deposits may result from implantation of a detached portion of the parent tumor, in this case deposited upon the serosa of small intestine. As regards the pathological characteristics of these secondary growths they were found in every instance to correspond with those of the parent growth, but they cite a case in which a medullary hypernephroma had given rise to many metastases, most of which were also medullary in character, but one of which, involving the region of the renal vein, was made up entirely of cortical cells.

ANASTOMOSIS OF THE VAS DEFERENS.

Vulliet [15] shows an illustration of the vas deferens of a dog resected and then sutured. The permeability of the vas is clearly shown. He did this successfully three times out of four in dogs, and these results in man are even more promising. Bogoljuboff [16] refers to Razumowsky's experiments, and says the best technic is the establishment of anastomosis between the vas and the head of the epididymis or the upper half of its body. Posner and Cohn [17] have operated upon six cases where the vas was obliterated by mumps or other inflammatory processes after an interval of several years (four to twenty-seven). They say that the stricture in these cases is usually multiple. They recommend the routine examination of semen obtained by prostatic pressure in cases after acute epididymitis, and prompt medical measures if there is evidence of obliteration. These measures are massage by Zabludowski's technic, and iodine internally.

NEW OPERATIONS.

Garceau [18] reports an interesting case of stone in the ureter which he wished to attack through the vagina, but the distance was too great so he incised the anterior cul-de-sac, pushed back the peritoneum between the bladder and ureters, everted the broad ligament backwards and then caught stone with the crooked tip of the finger and forced it down toward the vaginal outlet where it was easily cut down upon and squeezed out through a comparatively small incision. Witherspoon [19] describes an operation to reach the lower ureter by an extraperitoneal route. This he accomplishes through an incision four inches long over the lower end of the rectus muscle beginning over its insertion at the pubes and extending upward parallel to its fibers. He goes through the rectus by blunt dissection, and comes down by the peritoneum which is gradually pushed over by the dissecting finger toward the median line. The operation is described in detail and its steps illustrated by three photographs. Wiener [20] advocates a quick, suprapubic prostatectomy under nitrous oxide anesthesia, describes his technic and reports six cases. Pringle [21] describes three cases in which urethral defects were remedied by grafting portions of an ox's urethra.

Crawford [22] advocates the removal of stones from the lower end of the ureter by suprapubic incision into the bladder, and then digital dilatation of the ureteral outlet. In his case after an hour's constant work with the finger the orifice of the ureter was dilated enough to allow the passage of a stone 1¾ inches in diameter without lacerating the wall of the bladder.

Ruff [23] mentions the Katzenstein method for anchoring an undescended testis, and modifies it in this way: After bringing down the testis, he stitches the inguinal canal in such a way as to make some pressure upon the cord sufficient to produce without injury venous congestion and a consequent enlargement which prevents its slipping back. He describes but a single successful operation.

X-RAY CHANGES PRODUCED BY ITS USE ON THE TESTES.

Frieben [24] calls attention to the fact that all the male guinea pigs and rabbits experimented upon proved sterile after exposure to X-rays, and adds that of the other organs none showed changes except the testes which were always found decreased in size from one third to one half. The microscope revealed that the epithelium of the seminiferous tubules had practically vanished and no spermatogenesis could be shown. There was no evidence of inflammatory process.

RARE CASES.

Murphy [25] reports a case of acute epididymitis in an undescended testis in which gonococci were demonstrated in the excised organ. Rosenstein [26] describes a case in Israel's clinic operated for prostatic enlargement by the usual Bottini

method. During the operation the bladder ruptured with the sound of an explosion. It is believed that the steam manufactured by the cautery heat was responsible for this result. Rosenstein says there is no remedy and advocates prostatectomy in consequence.

PERINEPHRITIS IN CHILDREN.

Townsend [37] brings forward the following points in connection with this subject: The condition is a rare one. Quotes Kuster's writings in support of this statement. The latter had been able to collect but 230 cases of the condition in persons of all ages in 1897. It is especially rare in children. The best classification of the cases he considers that of Schmid, which is according to their being due to a direct primary infection of the perirenal tissues or to an indirect one coming from more distant parts of the body. The bacteria found in connection with the condition locally are staphylococci, streptococci and pneumococci, also the typhoid, tubercle and colon bacilli. In 80% of the cases of primary direct infection suppuration occurs. In secondary indirect infections abscess always results. A few cases of bilateral perinephritis have been reported.

Symptoms. — The first symptom is usually severe pain in the renal region near the spine. It may, however, be felt in the front of the abdomen, or radiating down the thigh as a sciatic pain, or again as the pain of lumbago, or again in the axillary line. The spine is usually held rigid, and when suppuration has occurred and also it may be prior to it, the leg is often flexed as in the psoas abscess of Pott's disease. Chills, rigors, fever, are the rule amongst the early symptoms, so also is constipation. Abscess usually points, if not interfered with, either in the loin near the spine, or it may simulate ordinary psoas abscess and appear in the more usual or unusual places in which the latter is noted in different cases. The conditions most easily mistaken for it are Pott's disease, and acute osteomyelitis of the vertebræ. The latter can often be distinguishedfromit by the marked tenderness on pressure over the affected part of the spine, which is not present in perinephritic abscess. The mortality of the cases treated surgically is very much less than that when the cases are treated expectantly.

PRIMARY CARCINOMA OF THE PROSTATE.[38]

The condition is stated by the writer to be more frequent than is generally thought. A considerable number of prostates believed to have been simple senile hypertrophy have, upon more thorough examination, proved to be carcinomatous. Albarran and Halle found 14 cancerous prostates out of 100 which were supposed to be merely senile hypertrophies of the gland. The metastases in connection with cancer of the gland are frequent and extensive. When they occur they are always far in excess of the extent of the disease in its primary seat in the gland. The favorite locations are the glands and the bony skeleton. The glands usually involved are the pelvic, inguinal and iliac. The mesenteric, axillary, supraclavicular, hepatic and mediastinal have also been observed as being involved. Metastasis takes place through the lymphatic channels, and into the inguinal chain, probably secondarily from the pelvic glands or rarely from the corpora cavernosa, and not directly from the prostate.

The metastases in the bones are as a rule general, rarely are only one or two bones alone affected. In a case of Cone's the distribution was characteristic; it occurred in three lumbar vertebræ, in the ilium, tibia and one rib. In 34 cases in which the skeleton was implicated collected by Kaufmann, the lumbar vertebræ were involved in 27, ilium in 21, ribs in 19, femur in 23, sternum in 12, and tibia in 6.

Hawley makes the only factors that are of avail in making the diagnosis in the early stages of the disease, the presence of the three phenomena which, however, he does not assert to have more than a relative value and to be more than very suggestive. These three things are pain in or about the prostate, areas of hardness and "nodosity" palpable through the rectum, and tenderness. Duration of the disease is from six months to about two years, its malignancy is exhibited more by the metastatic colonies and their activity than from that of the primary focus of the disease.

The treatment is referred to in an interesting way by the writer. He says: "Theoretically, removal of the prostate in early cases should result in radical cure by reason of its tendency to remain sessile and embedded in the gland." The operative experience of forty years from the first case of Billroth in 1859 to 1899 was one of uniform failure and furnished a good example of what pathology is constantly demonstrating, *viz.*: that excision of mature malignant growths can rarely be complete, and in this case surgery failed because of the inability to recognize the condition in an early stage of development. In the last years, however, the prospect has become somewhat more encouraging. Thus Oraison has collected 23 cases from the French clinics, which were treated by perineal prostatectomy in the early stages of the disease. Of these cases 10 or 43% remained well for four years or more. In 3 only is recurrence known to have taken place. Four died from operation, and the remaining 6 recovered from operation, but have been lost sight of.

To operate in any but the earlier stages of the disease is a grave mistake and absolutely hopeless so far as the possibility of a cure is concerned.

Contra-indications to operation are stated to be anything that shows that the disease has extended beyond its original seat. This cannot be determined short of exploration by operation, and is not to be positively ascertained always then.

Prostatectomy with removal of the entire prostatic urethra, cutting across the membranous urethra at its junction with the prostatic urethra and removal of the gland by intracapsular (that is to say within the outer sheath), the writer con-

siders the only efficient method to apply to cases of cancer of the gland, no matter how limited the disease may be.

REMARKS UPON THE TREATMENT OF BLADDER TUMORS.[29]

In this abstract of the writer's original article, it is stated that he has collected 367 cases of tumors of the bladder, from eight statistical series by as many writers Of these, 99 were in women. The writer leans toward the view that in males the larger number of new growths in the bladder proceed from the prostate as the original site of the disease which is held to be the case by Motz who places the proportion as high as 73% of all male cases.

With regard to treatment the writer holds that total extirpation of the bladder is the only one that is worth while, in all cases of malignant disease in which any operation is justifiable, and advises that in cases of a nonmalignant nature it is better not to attempt to carry the incision, by which the growths are removed from the bladder wall, so deeply into the latter as has been advised by some operators, but to include in the incision a larger area of the mucous membrane from which the tumor springs than is customary.

PROSTATIC ABSCESS.[30]

The article contains an analysis of 35 cases of the above-named condition treated by Korte. In the majority of cases the origin was gonorrhea; once tuberculosis. The condition is often spontaneously relieved by having the abscess open into the urethra; this or opening into the rectum by no means always ends so happily. The most trying and sometimes serious complications may result in either case; for example, when the rupture is in the urethra it may lead to cystitis, to pyelitis or to urinary infiltration. The suppurative process sometimes extends to the perineum, the testicles or epididymis, and may burrow up beneath the peritoneum or burst through the latter. The writer counsels not to open the abscess from the rectum, but that it should be approached from the curved prerectal perineal transverse incision, a thorough exposure of the gland and its abscess and its free opening. Fistula will not result unless the urethral wall has been injured. Of the whole number of the 35 cases of Korte, two died. Surgical treatment in the above described manner is strongly recommended. The opening of the abscess into the rectum is very apt to be followed by urethro-rectal fistula.

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Reports of Societies.

AMERICAN PUBLIC HEALTH ASSOCIATION.

PROCEEDINGS of the Thirty-second Annual Meeting held at Havana, Cuba, Jan. 9, 10, 11, 12 and 13, 1905.

The Association met at the Athenæum Club, under the presidency of Dr. CARLOS J. FINLAY of Havana.

Following the transaction of routine business, such as the election of over a hundred new members, etc., the reading of papers was begun.

PURIFICATION OF THE ST. LOUIS WATER SUPPLY BY USING FERROUS SULPHATE AND CALCIUM HYDROXIDE AS A COAGULANT, FOLLOWED BY PLAIN SEDIMENTATION.

This paper was read by DR. C. A. SNODGRASS of St. Louis, Mo., and was of particular interest, for the reason that it set forth a simple, practical and inexpensive method of handling large quantities of surface water. It called attention to the fact that from the year 1832, the time at which the first water works system of St. Louis was installed, until 1904, the water supply of St. Louis had been unsatisfactory, and that in a few months' time a complete transformation of the quality of the water had been secured. The comparative cost with other proposed methods was most striking. One of the proposed methods called for an original outlay of $31,000,000; another $2,700,000, while the present plant required only $10,000 for its construction. This plan of operation was shown to cost $4.50 less per million gallons than any other proposed plan.

The exact and extensive chemical and bacteriological data added to the physical properties proved conclusively that a water of a high degree of potability was being secured. The removal of suspended matter was shown to average 96.9%, whilst the bacterial removal averaged 95% in many weekly analyses, showing an efficiency of 99%. Mineral analysis showed that there was nothing left in the water that could be inimical to health.

Death-rate from typhoid fever during the last year had been materially lowered, but owing to the limited time of operation of the present system, no deductions from this point of view were insisted on. Reports from engineers and manufacturers showed that the treatment given the St. Louis water supply was highly satisfactory to their interests. It was the opinion of the writer that little or nothing would be gained by adding mechanical filtration to this system.

Attention was called to the difficulties which were unavoidable in the institution of this plan into the previously existing plant, and it was claimed that with contemplated changes of a minor character the expense of operation would still be lowered and the efficiency increased.

COPPER SULPHATE METHOD FOR REMOVAL OF GERMS FROM WATER.

Mr. F. S. Hollis of New Haven, Conn., contributed a paper in which he described a practical test of the copper sulphate method for the removal of germs from water supplies.

REPORT ON PURIFICATION AND PRESERVATION OF WATER SUPPLIES.

Mr. Geo. W. Fuller of New York presented the report of the Committee on Purification and Preservation of Water Suppiles. He stated that the principle of the use of sulphate of copper in treating water supplies was not a new one, as it had been used for thousands of years.

With reference to filtration, he said the number of cities in the United States, with a population of 25,000, now using the filtration plan, was about 8%, those which had filters under construction 11%, those in which filters had been authorized 21%, and those in which filters were being considered as necessary 31%. Statistics and arguments were advanced in favor of filtration as a method of purifying water supplies of cities.

Dr. Frank Warner of Columbus, Ohio, stated that in considering the improvement of any public water supply, more attention should be given to the better protection of the water-shed. This feature was either neglected or overlooked in connection with modern purification plants. This was especially true of pollution near the purification works, and the water should be delivered to the purification plant in as pure condition as possible before purification.

Mr. H. W. Clark of Boston said that since the introduction of filtration at Lawrence, Mass., the city had increased in population from 45,000 to 75,000 and the percentage of deaths from typhoid fever had been materially reduced.

Mr. Robert S. Weston of Boston stated that other questions of purification of water must be settled before any one method could be universally used.

DISINFECTION AND DISINFECTANTS.

At the afternoon session the report of the Committee on Disinfection and Disinfectants was read by Prof. F. C. Robinson of Brunswick, Me. The report was a review of the more important literature on the subject during the past year, especially in the foreign journals. As to experiments on disinfecting railway cars by formaldehyde, the results showed that in case of passenger cars it was practically impossible to completely sterilize all parts by the vapor of formalin, but still the experimenters think that it is the most practical thing to employ for that purpose. They recommend 1,000 cc. of the liquid formalin to each car, but of course the cars are much smaller than those in use in the United States.

As to chemical methods for sterilizing drinking water, V. B. Nesfield recommends the use of tablets made from 1½ gr. bleaching powder and ½ gr. sodium bicarbonate. He claims that these will each sterilize a pint of water in five minutes, or, better, ten. He removes the paste of chlorin by adding a tablet of sodium sulphate. He claims that by such use the most foul river water can be made free from disease germs and palatable.

With regard to the disinfection of books, the report called attention to the danger of the spread of infectious diseases through library and school books. It was recommended that the danger should be met as far as possible by notices in libraries calling attention to the advisability of handling books with clean hands, of not touching the hands to the mouth after handling books until the hands are washed, and, in addition, submitting books much used to the action of formaldehyde vapor once in a while.

Remarkable results had followed the occasional use of weak solutions of formaldehyde on the floors of schoolhouses — solutions so weak that they gave no disagreeable odor. Infectious colds and other dust-borne diseases were much lessened among the scholars. The committee believe that the occasional use of such solutions on floors and surfaces in dwelling houses as well as public buildings would do a great deal towards improving public health.

THE USE OF SULPHATE OF COPPER ALONE OR IN COMBINATION WITH LIME FOR THE DESTRUCTION OF MOSQUITO LARVÆ AS A DEODORANT AND AS A DISINFECTANT.

Dr. A. H. Doty of New York contributed a paper with this title. The author's investigation embraced the following points: First, the use of copper alone or in combination with lime for the destruction of mosquito larvæ; second, as a deodorant, and, third, as a disinfectant.

In summing up as to the value of copper alone and in combination with lime, as the result of his experimental work, he stated that in the destruction of mosquito larvæ and as a deodorant, the use of copper in combination with lime was more effective than when used alone. That this mixture destroyed mosquito larvæ by rapidly removing from the water in which they were contained the organic matter or nourishment upon which they depended for life, and that this result was not due to a toxic effect produced by the copper or lime. Therefore, the range of usefulness of these agents, either alone or in combination, in the destruction of mosquito larvæ was limited.

As to copper and lime as a deodorant, he believed it to be the most valuable and practical agent we possess at present for this purpose. Its action as a deodorant was rapid and permanent. It was practically harmless, cheap and easily made, and seemed to comply with the requirements of a typical deodorant. Its range of usefulness was extensive, as it could be employed equally well for deodorizing solids or fluids. Little could be said regarding the germicidal value of copper at the present time.

THE DISINFECTION OF SCHOOL BOOKS.

Dr. Walter D. Greene of Buffalo, N. Y., stated that the examination of the public school books early in 1902 revealed the fact that they were filthy, especially those used by the lower grades. These books were furnished gratuitously by the city, and consequently there existed a tendency to use them until they were literally in pieces — a period covering several years. It was thought that these filthy books, worn and handled by so many diminutive individuals, might be, and probably were, a possible source of contagion, and it was decided to disinfect them. The books were placed on their edges with covers widely separated, upon tables and shelves in tightly sealed rooms. Formaldehyde gas was liberated in the room, six ounces of a comparatively fresh commercial formalin being used for every one thousand cubic feet of air space, the vaporization being induced by the use of wood alcohol being burnt in a receptacle containing the formalin. Bacteriological examinations were made of the soiled leaves of books both before and after disinfection, and it was found that about 85% of all organisms were killed. For the three years immediately preceding this school-book disinfection — that is, 1899, 1900 and

1901 — the average number of cases of scarlet fever reported to the health department by physicians in Buffalo was 875 yearly, while the average yearly deaths for the same time was 36. For the three years following such disinfection, the average number of cases reported yearly was 528, and the number of deaths yearly for the same time was 18. He hoped the results of these investigations would stimulate health boards and health officers to disinfect the school-books of their respective municipalities.

THE SOURCES OF INFECTION.

DR. CHARLES V. CHAPIN of Providence, R. I., after pointing out various sources of infection, directed attention to isolation and disinfection. He said that it was perfectly plain, if we could isolate every case of a given contagious disease until all infection had disappeared, the disease would not merely decrease, but it would be exterminated. If we could only control one half, one quarter, or one tenth of the foci of infection, it was equally clear that the disease would never be exterminated, and it was not even certain that it would diminish. The relation of probable success to the efforts made must decide the extent of these efforts. It was the writer's opinion that for most of the diseases, and for most localities, restrictive measures were either carried too far, or were not carried far enough.

THE ACTUAL SANITARY CONDITIONS OF HAVANA AND THE FURTHER REQUIREMENTS FOR THEIR IMPROVEMENT.

DR. ERASTUS WILSON of Havana said that the prevailing annual mortality in the city of Havana previous to American intervention — 1898–1902 — approximated 40 per thousand. The general cleaning up of public places and rigid house-to-house inspection and abatement of unsanitary domestic conditions, together with filling the puddle holes and irregularities in the macadamized streets, with the prohibiting of the ejection of domestic wastes into the by-ways, obtained immediate and notable reduction in the mortality rate in the city. The continuation of the sanitary measures introduced by that intervention and the continued improvements of the pavements of streets had reduced the type of mortality and morbidity to about 50% of its former rate, besides beautifying the city and making it infinitely more attractive for residents who were interested in health and general culture.

The author called attention to a further requirement of sanitary science, which was radical and indispensable, namely, a modern system of sewers of proper section, regularly graduated in size and declivity from their incipience to outfall, impermeable throughout and connected with the closets of every house by lead-jointed, cast-iron pipes, uniting them to the sewer outside the domicile.

Following Dr. Wilson's paper, this resolution was offered and adopted:

"*Resolved*, That the Association congratulates the civic authorities, the physicians and the people of Havana in general upon the gratifying improvement made in its sanitary condition, and especially upon their work in freeing their beautiful city from any danger from that once-dreaded scourge — yellow fever — by their persistent and skillful campaign against the yellow fever mosquito. We are especially gratified also that they do not propose to rest contented with what has been done, great as it is, but have already planned other sanitary improvements of great importance, including an efficient system of sewerage, which we wish them Godspeed in carrying out at the earliest practicable moment."

Addresses of welcome were delivered by Dr. Cancio, Secretary of Public Instruction to President Palma, representing the Cuban government, and by Dr. Lincoln de Zayas, representing the medical profession of Havana.

(To be continued.)

Recent Literature.

Notes on X-Light. By WILLIAM ROLLINS. University Press. 1904.

We have before us this handsome octavo volume of 400 pages of text with a supplement of 152 illustrations. In his brief preface, the author states that he has recorded in these notes "some impressions derived from experiments made after the day's work, as a recreation, yet with the hope of learning to design and construct apparatus for my friend Dr. F. H. Williams, who has done most to show the importance of X-Light in medical diagnosis." Some of these papers were originally printed in this JOURNAL.

This edition was privately printed for the author at the University Press, Cambridge, and fully justifies the claim of that press that it is a good specimen of the art of printing.

Clinical Lectures on Mental Diseases. By T. S. CLOUSTON, M.D., Edin., F.R.C.P.E., etc. Sixth edition. pp. 738. Philadelphia and New York: Lea Brothers & Co. 1904.

This is the first English text-book on insanity to reach a sixth edition, — proof positive that it is a great favorite with instructors, students and practitioners. Nevertheless, we look in vain for an adequate expression of the author's views, which the preface rather leads us to expect, on the "great changes that scientific opinion has undergone in the etiology, classification and pathology of mental diseases," since its last edition appeared. But, except for slight allusions to the supposed bacterial origin of certain mental conditions, a brief criticism of the term "dementia precox," a few new pages on the causes and nature of general paralysis and a number of excellent plates, the editions are practically the same. Now, there can be no question that the comparatively recent work of the German and Italian schools of psychiatry, notably those of Kræpelin, Ziehen and Wernicke, represents a new departure which has been widely accepted, in the interpretation of symptoms, symptom groups and disease-entities and more minute and accurate analyses of mental processes. This has led to a clearer insight into the whole nature and ultimate course of disease. It is, therefore, a distinct disappointment not to know more definitely the views of such a masterly clinician as Clouston on these recent conceptions of mental disease, for he is sure to have valuable opinions on the subject which would make a most serviceable addition to these unique, graphic and deservedly popular lectures without in the least impairing their individuality.

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TWENTY-FIFTH ANNIVERSARY OF THE BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

The twenty-fifth anniversary of this society was appropriately celebrated Thursday evening, January 19, by a dinner held in Boston, largely attended by the members of the society as well as by guests from other cities. Dr. G. A. Blumer of Providence, the retiring president of the society, gracefully presided over the after-dinner exercises.

Dr. Walter Channing, who was introduced as the "Father of the Society," gave an account of its history from its inception in the year 1880 to the present time. The first meeting was held at the house of Dr. G. F. Jelly, and then, as since, considerable insistence was laid upon the social side of the meetings. The society was then called the Medico-Psychological Society, a name which it retained until a few years ago, when it received the title which it now bears. Dr. Channing also spoke of the vicissitudes through which the association had passed, its approach to death in 1881, its acceptance later of men particularly interested in neurology, its influence on state legislation, and its discussion of such important matters as expert medical testimony.

Dr. Charles K. Mills of Philadelphia, introduced as one of the most distinguished neurologists of the United States, spoke of the debt which Philadelphia owed to Boston in the foundation of the University of Pennsylvania and many of its prominent public institutions through the influence of Benjamin Franklin. He also paid tribute to Dr. Isaac Ray, whom he characterized as the greatest alienist of the country, first lecturing on insanity in Philadelphia after Rush.

The assemblage was then called upon to listen to an admirable poem from the pen of Dr. George L. Walton, who characterized the various presidents of the society, past and present, in happy verse, not always perfectly metrical, but not the less acceptable on that account. Dr. James J. Putnam was aptly introduced by the president as the most conscientious neurologist that the world ever saw, a sentiment with which the assemblage appeared to be in fullest agreement. Dr. B. Sachs of New York brought the greetings of the New York Neurological Society, and discussed in a serious as well as a jocular manner the difficulties experienced in New York in maintaining the enthusiasm which this special branch of medicine demands. Dr. J. W. Courtney added much to the gayety of the occasion, and Drs. Collins of New York and Knapp of Boston also brought their contributions to the evening's entertainment.

Among the matters which were seriously considered was the possibility of combining in one society, men interested primarily in psychiatry and those interested more especially in neurology. The feeling has certainly been growing of late that these two branches of medicine should come into closer accord than heretofore, and the consensus of opinion was that this is both desirable and possible as has been demonstrated by the history of the Boston Society. However this may be, the evening marked a stepping-stone in the history of an organization which from all appearances is destined to exercise an increasing influence over matters which come within its province. Such a society naturally has close relationships with many civic matters, and there can be little question that it should exert a still wider influence on legislation which relates to the criminal and to the defective classes in the community. A closer co-operation between this society as an organized body and legislators would no doubt conduce to a greater rationality of legal enactment and to an improvement in many of the relations in which the state and the profession of medicine come into contact.

AN ANTI-CARCINOMA SERUM.

In the issue of the *Medical News* for January 14, there appears a special article from the pens of Drs. Harvey R. Gaylord, G. H. A. Clowes and F. W. Baeslack on an anti-carcinoma serum. The paper is a preliminary report concerning the presence of an immune body in the blood of mice spontaneously recovered from cancer, and the effect of this serum upon growing tumors in mice

infected with the same material. During a visit to Copenhagen Dr. Gaylord obtained two white mice with growing tumors which had been inoculated from a strain of mice infected with adenocarcinoma. Both of these mice died in transit, but inoculations of twenty-five white mice were made from the tumors. Of these inoculations 60% from the second mouse were successful, and since then there have been a number of infected mice in various stages of the disease. Several months ago it was noticed that in a number of mice the tumors ceased growing and underwent retrogression terminating in the disappearance of the tumor without recurrence. Immunity experiments were begun, and it transpired that in a large number of mice, in which the transplanted tumor grew in virulence, it showed no tendency toward retrogression. Investigations as to whether the blood of those mice which recovered spontaneously possessed immunizing qualities led to positive results. It was shown that the blood serum of these mice, injected into others with growing tumors, inhibited the growth of tumors and endowed the animal with immunity from recurrence.

Control experiments showed that tumors were not influenced by normal mice serum equal in volume to the doses of immune serum. The authors, therefore, conclude that they have actually found a serum which is capable of retarding the development of malignant tumors, and also leading to a diminution in the cachectic symptoms occasioned by such tumors. A further conclusion is that mice cured by injection with immune serum likewise possess active immune qualities in their serum, capable of causing the disappearance of small tumors and the inhibition of large ones. The histological changes resulting in tumors checked in their growth are closely allied to simple atrophy, a connective tissue stroma in great measure taking the place of the epithelium. The concluding paragraph of the communication is as follows:

A review of the literature shows that authentic cases of spontaneous cure of cancer in human beings are not unknown, and the correlation of our histological findings with those already noted in man lead us to the conclusion that a similar immunity undoubtedly exists against human cancer. Although our work thus far has shown us that great difficulties will undoubtedly be encountered, it is perhaps not too much to hope that a careful analysis of the facts obtained in our experimentation on mice may ultimately lead to a practical application of these facts with a solution of the question of the curability of cancer in human beings.

We have no special comment to make on the foregoing. The work which has been done now for several years at the Buffalo Laboratory is well known. It has not met with universal acceptance; for example, the conclusions of the Harvard Cancer Research Commission are diametrically opposite to those emanating from this laboratory. Evidently the end is not yet in this discussion, and we shall await with interest further confirmation of results, which in the present state of the inquiry are somewhat unexpected.

PAPER MILK BOTTLES.

IN a recent number of *Sanitation* Dr. A. H. Stewart of the bacteriological department of the Philadelphia Bureau of Health suggests a substitute for the glass milk bottle, against which certain just criticisms have of late been raised. It is evident that the original expense of these bottles, their liability to break, the difficulty of cleaning, and the possibility of transmission of disease through their use, are all arguments which should be given weight. The advantages of glass on the other hand are self-evident. Attempts hitherto to supply a substitute for glass bottles have in general been unsuccessful, chiefly through lack of strength and expense.

Dr. Stewart has recently investigated a new paper milk bottle which he regards as a possible substitute for the glass bottles ordinarily used. These bottles are made of heavy spruce wood fiber paper in conical shape to facilitate nesting. The effort has been made, apparently with success, to make the bottles sufficiently strong, and, through saturation with paraffin, to render sterilization possible. Bacteriological tests showed that the bottles were wholly sterile, and that any original organisms that might have been present in the wood pulp were destroyed in the process of manufacture. A comparison of milk contained in these paper bottles and in glass bottles showed fewer organisms in the former in the proportion of about one to four. It was furthermore found that milk kept sweet upwards of two days longer in the paper bottles. The advantages which Dr. Stewart sees in the bottles are that they need be used but once, that they are more convenient for storage and packing, that they are lighter, that they are sterile, and that the annoyance of the re-collection of milk bottles is dispensed with. It is maintained that the ordinary washing of bottles is a farce, and that frequently dirty bottles are refilled. It is also possible with the paper bottles to facilitate

materially the delivery of milk because the carrying capacity of each wagon is almost doubled by their use. Various other advantages of the paper bottle are urged which, if they stand the test of experience, would seem inevitably to lead to the disappearance of the generally accepted glass bottle.

The receptacles for tuberculosis in all well-appointed hospitals are now invariably made of material which may be burned after use, and we can see no reason why a similar provision, although no doubt less urgently required, should not also be made for milk, through which, as is well recognized, disease may easily be transmitted. Evidently destructible bottles, provided only they fulfil the first requirements of stability and cleanliness, should quickly become a substitute for those now in use. If Dr. Stewart's enthusiastic claims for the bottles which he has apparently carefully investigated are substantiated, we can easily see the beginning of a far-reaching and useful reform.

MEDICAL NOTES.

Leprosy in the Philippines. — According to a recent monthly report of the Board of Health for the Philippine Islands it appears that a total of 3,628 lepers are now living in the Philippine Islands, divided very unequally among the various provinces. The Province of Cebu leads in numbers with 675 cases, followed by Mindanao with 143. But one province is wholly free from the disease.

Sanitation of Cuba. — The passage of an appropriation for the immediate sanitation of Cuban cities has been passed by the Cuban government, the amount being $326,000. The interest which the United States has taken in Cuban sanitation is not regarded as an affront, but the opinion is expressed that Cuba should carry out the work of sanitation on her own responsibility, regardless of recommendations by the United States.

German Congress of Internal Medicine. — The twenty-second Congress of Internal Medicine will be held at Weisbaden, April 12 to 15, inclusive, with Professor Erb of Heidelberg as president. The main topic for discussion will be heredity, the biological report being by Dr. H. E. Zeigler of Jena, and the relation of heredity to tuberculosis by Dr. Martius of Rostock. Other papers will, however, be presented on general medical topics.

The Appointment of Surgeon-General Alfred H. Keogh. — Surgeon-General Alfred H. Keogh, M.D., C.B., has been appointed Director-General of the English Army Medical Service. The election of Dr. Keogh is a recognition of a more liberal tendency than has hitherto prevailed, inasmuch as his selection was not based upon seniority of service. He is said to be under fifty, to have had a wide experience for a man of his age, and on several occasions to have taken part in proceedings of an important character wherein he has shown qualities of leadership which have led to his appointment over the heads of many officers in the service of more advanced years and rank. The London *Lancet* finds cause for congratulation in this appointment which represents the adoption of a new and sound principle.

Vaccination. — The following opinion of the Court of Appeals of New York State, relative to the vaccination of school children, published in the *Bulletin* of the Connecticut State Board of Health, is worthy of wide dissemination as a judicial statement of the facts regarding vaccination;

"The appellant claims that vaccination does not tend to prevent smallpox, but tends to bring about other diseases, and that it does much harm with no good. It must be conceded that some laymen, both learned and unlearned, and some physicians of great skill and repute, do not believe that vaccination is a preventive of smallpox. The common belief, however, is that it has a decided tendency to prevent the spread of this fearful disease and to render it less dangerous to those who contract it. While not accepted by all, it is accepted by the mass of the people as well as by most members of the medical profession. It has been general in our state and in most civilized nations for generations. It is generally accepted in theory and generally applied in practice, both by the voluntary action of the people and in obedience to the command of law. Nearly every state in the Union has statutes to encourage or directly or indirectly to require vaccination, and this is true of most nations in Europe. It is required in nearly all the armies and navies of the world. Vaccination has been compulsory in England since 1854, and the last act upon the subject, passed in 1898, requires every child born in England to be vaccinated within six months of its birth. It is compulsory, or is aided, encouraged, and to some extent compelled, in the other European nations. It is compulsory in but few states and cities in this country, but it is countenanced or promoted in substantially all, and statutes requiring children to be vaccinated in order to attend the public schools have generally been sustained by the courts."

The opinion further states, that a common belief like common knowledge may be acted upon by the legislature and courts without proof, and the fact that it

is not universal is not controlling for there is scarcely any belief that is accepted by every one, and what the people believe is for the common welfare must be accepted as for the common welfare. "While we do not decide and cannot decide that vaccination is a preventive of smallpox, we take judicial notice that this is the common belief of the people of the state, and with this fact as a foundation, we hold that the statute in question is a health law, enacted in a reasonable and proper exercise of the police power."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Jan. 25, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 44, scarlatina 23, typhoid fever 20, measles 14, smallpox 1.

Death-rate for the week on the total deaths reported, 1605.

A CENTENARIAN. — Mrs. Margaret McFetheries, reputed to be one hundred and two years old, died Jan. 5 in Springfield, Mass. Mrs. McFetheries regarded her long life as due to her industrious habits.

A BILL TO REGULATE THE HEIGHT OF BUILDINGS. — Prof. William T. Sedgwick of the Massachusetts Institute of Technology has introduced a bill into the Massachusetts Legislature limiting the height of buildings in this state to one hundred feet.

A CASE OF LEPROSY. — A case of leprosy in the person of a young Chinese, who has been living in Newburyport, has been called to the attention of the Board of Health, by whose officials the diagnosis was definitely made, and the patient sent to Gallop's Island. It appears that he has been a sufferer from the disease for about a year and a half. There are already two other lepers at Gallop's Island awaiting final disposition.

A BILL TO REGULATE EXPERT TESTIMONY. — A bill has been introduced into the State Senate for the regulation of expert testimony. The petition urges the necessity of legislation in respect to expert witnesses in the courts of the State of Massachusetts on the ground of expense to the state, of biased testimony, and of the unnecessary number of experts employed. The bill provides that expert witnesses shall not be paid amounts in excess of the ordinary witness fee unless the court awards a larger sum. The number of expert witnesses is also limited, except in special cases. Sporadic attempts have been made from time to time to improve the character of expert testimony, but hitherto without success. We are inclined, in general, to think that justice would be better subserved if the court had more choice in the selection of experts.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending January 21 was 256, as against 222 the corresponding week last year, showing an increase of 34 deaths, and making the death-rate for the week 21.74. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 35 cases, 7 deaths; scarlatina, 23 cases, 2 deaths; typhoid fever, 9 cases, no deaths; measles, 16 cases, no deaths; tuberculosis, 37 cases, 19 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 51, whooping cough none, heart disease 25, bronchitis 6, marasmus 4. There were 22 deaths from violent causes. The number of children who died under one year was 40; under five years 53, persons over sixty years 76, deaths in public institutions 79.

NEW YORK.

DEATHS IN NEW YORK. — The number of deaths in New York City, according to the official record, increased from 67,864 in 1903, to 77,985 in 1904. The principal causes assigned for this, in addition to the increase in population, are the "Slocum" steamboat disaster and the increased mortality from pneumonia, Bright's disease, and epidemic cerebrospinal meningitis. The number of deaths reported from pneumonia was 12,366, as against 9,714 in 1903. Since 1872, when there were 782 cases, in the old city (now the boroughs of Manhattan and the Bronx), there has been no year which approached 1904 in the number of cases of cerebro-spinal meningitis reported. In 1904 the number of cases of meningitis, including both simple meningitis and the epidemic variety, amounted to 3,044.

SWEATSHOP WORKING. — The State Labor Bureau has commenced a vigorous campaign against tenement houses where "sweatshop" clothing is made which does not conform to the regulations prescribed in the act passed by the last legislature, which went into force Oct. 1. This provides that not simply the individual apartment, but the entire house where clothing is finished, must be licensed. Since October, the bureau has been sending out warning notices to thousands of landlords, proprietors and real estate agents, and on Jan. 10, twenty-two inspectors swooped down upon Elizabeth Street to seize and tag all the clothing reaching completion in unclean and unsanitary houses. More of such

finishing work is done on this street, it is said, than in the entire state of Massachusetts. Any clothing found to be already affected by the condition of the premises is confiscated temporarily and turned over to the health department for disinfection. In Pennsylvania it is stated that all such clothing must be burned up.

New Building for Manhattan Eye, Ear and Throat Hospital. — Plans have been filed at the Building Department for a new nine-story building to be erected on 64th Street, just east of Third Avenue, for the Manhattan Eye, Ear and Throat Hospital, now at Park Avenue and 41st Street. The building will stand on a plot 118 by 100 feet, and two wings will provide some parlors on each of the nine stories. The façade will be of ornamental brick, with trimmings of stone and terra cotta, and the total cost is estimated at $600,000.

Annual Meeting of Ophthalmic and Aural Institute. — The New York Ophthalmic and Aural Institute, of which Dr. Herman Knapp is executive surgeon, held its annual meeting on January 17. Some time ago it was resolved to move from the present location in 12th Street as soon as the money could be secured for a suitable building up town. Two hundred thousand dollars was raised, and a site has been purchased at 64th Street and Central Park, West. At this meeting the trustees determined, however, not to commence building operations until the fund amounted to $350,000.

Local and National Health Condition. — At a meeting of the New York County Branch of the State Medical Association held January 16, the local and national health conditions, with the work of the respective departments, was the subject of discussion. The Health of the Nation was presented by Dr. Walter Wyman, Surgeon-General of the Public Health and United States Marine Hospital Service; the Health of the State, by Dr. Daniel Lewis, State Commissioner of Health; the Health of the City, by Dr. Thomas Darlington, President of the City Department of Health, and the Health of the Port of New York, by Dr. A. H. Doty, Health Officer.

Hospital Saturday and Sunday Association. — The annual meeting of the Hospital Saturday and Sunday Association was held at United Charities Building on Jan. 11. Frederick F. Cook, the general agent, reported a favorable outlook for the collection of the present season, though the returns were as yet too incomplete to base an estimate of the total amount upon. From the churches the returns so far received gave hope, he said, of an aggregate perhaps double of that of last year, while the amounts from nearly all the trade auxiliaries promised better results than in any previous year.

One Hundred Years of Publishing. — "One Hundred Years of Publishing, 1804-1904," is the title of an historical account of the firm of publishers, William Wood & Company, written by William C. Wood, of that house. The firm was founded by Samuel Wood, who in 1815 took into partnership two sons, and two years later a third son. From the time of the admission of the third son, William, they began to bring out medical works. In 1836 the father retired from the business to devote himself for the remainder of his life to the public charities in which he had long been interested. In 1863 William Wood took into partnership his son, William H. S. Wood, the present head of the house, and the style William Wood & Co. was then adopted. From the time of his admission to the firm the present senior partner advocated further specialization in the direction of medical publications, and in 1865 he started the *Medical Record*. Dr. George F. Shrady, the first editor of that journal, retained the editorship until July, 1904, when he retired and was succeeded by Dr. Thomas L. Stedman. Besides William H. S. Wood, there are now in the firm his three sons, William C., Gilbert C., and Arnold Wood.

Possible Abandonment of Sing Sing and Auburn Prisons. — In his annual report, just submitted, State Prison Superintendent Collins makes the recommendation that both Sing Sing and Auburn prisons should be abandoned. This is based on two facts: first, the approaching necessity of expending upward of $1,000,000 to rebuild the cell blocks in these two institutions, and, second, the general unsanitary surroundings of the two sites. Of Sing Sing he writes: "While the geographical location is excellent, the site of the buildings is so low, so near the level of the river, that satisfactory sewerage cannot be obtained. The water supply is bought, and is expensive; nor has it always proved reliable." Of Auburn he says: "The prison is in the city. Its ground space is insufficient, and has become contaminated by an excessive population for eighty-seven years. The health of prisoners is not so good here as at other prisons. Statistics show that there are more deaths here, and that more prisoners become insane, *pro rata*, than in other prisons." The superintendent

goes on to state that it is difficult to maintain a high degree of physical soundness among imprisoned men when the cells are unsuitable for their habitation. He therefore urges that the state should spend the money which would be required to improve the condition of these two worn-out structures upon the erection of one new central prison on lines of modern and progressive prison architecture.

Obituaries.

JOSEPH H. CONVERSE, 2D.

THE sudden, almost tragic, death of this promising young man, a fourth-year student at the Harvard Medical School, deserves more than passing notice. The son of Mr. Charles H. Converse, of Brookline he entered Harvard in 1897. While in college he was both a good student and a good athlete. He ranked well in his studies, and by his excellence as a hurdler contributed much to the victory of the Harvard-Yale team over the Oxford-Cambridge team in England in 1901. After graduating at Harvard College he entered the medical school and would have taken his medical degree next June, after a very creditable four years' course. He was appointed a substitute at the Boston City Hospital for a house officer who was sick, on one of the medical services. During this brief term of service it fell to his lot to assist in the care of a Portuguese patient who entered the hospital with cerebrospinal meningitis. He was present at a lumbar puncture, carried the fluid in a test tube to the laboratory, and subsequently during three days assisted in feeding the patient with a nasal tube. Eight days after first seeing this patient, early Friday morning, January 20, he had headache and vomiting; this condition presently improved to such an extent that he presented himself in the wards for his morning duties. The symptoms, however, shortly returned with great violence, yielding to no remedies, and he died within twenty-four hours, early Saturday morning. The diagnosis of cerebrospinal meningitis was verified. The original patient is still alive in a comfortable condition and there is good reason for anticipating a possible recovery.

This is one of those dispensations, fortunately rare, which must be accepted as at times inevitable in the discharge of his duties by the medical practitioner. One is taken and the other left. It emphasizes once again a lesson which the young and enthusiastic, whether among doctors, students or nurses, are prone to disregard, the necessity of constant precautions in dealing with certain classes of medical cases. We believe it is generally the young officer or the young soldier who forgets or declines to seek cover on the firing line. There are times and circumstances, it must be admitted, when risks must be taken unhesitatingly and precautions may be unavailing.

Although generally regarded as only very mildly contagious the mode of origin and of propagation of the disease to which Mr. Converse has unhappily fallen a victim, are still involved in much mystery. Sporadic cases and small epidemics continue to occur from time to time under the most inexplicable conditions as to their origin.

OTIS EUGENE HUNT, M.D.

THE death of Dr. Otis Eugene Hunt, at the age of eighty-two, occurred January 20, at his home in Newtonville, Mass. He was born in Sudbury, Mass., July 7, 1822, and, after preliminary education at several well-known schools, he was for a short time a student at Wesleyan University in Middletown, Conn. Later giving up his studies there on account of his health, he entered what was then known as the Boylston Medical College of Boston, and thereafter served as a house pupil at the Massachusetts General Hospital. He was one of the physicians present at the first demonstration of ether. In 1848 he was admitted to the Massachusetts Medical Society, and at about that time settled in Weston, where he continued to practice until the end of the Civil War. Later he removed to Waltham, and finally, his active work being interrupted by ill health, to Newtonville, where he built up a large practice. In 1883 he retired, turning over his practice to his son, Dr. William Otis Hunt. In addition to his life as a practitioner of medicine, he was connected with the school committee in Weston and in Waltham, for several years was secretary of the South District Medical Society, and closely associated with the Newton Hospital Medical Board from its foundation.

Miscellany.

MEDICAL NOMINATIONS FOR THE HALL OF FAME.

AT the first meeting of the Council of the Hall of Fame, in connection with the University of New York, held in 1900, only 29 names received the required majority (51) of the votes cast. Among these there was no physician. The second regular election occurs this year, 1905, when 26 more names should be elected to fill that additional number of panels. Only persons born in the United States, and now dead ten or more years, are eligible for nomination.

The *Western Medical l Review*, in an editorial in its current issue, proposes the nomination of five physicians, all of whom it considers well deserve the honor of an election.

"1. Benjamin Rush, of whom at the time of his death it was said, 'The name of Dr. Rush gave a splendor to the American character and greatly added to its reputation throughout the republic of letters. His works are read coextensively with the language in which they are written. He has been one of the most

prominent pillars on which his country's claim to be ranked with the learned nations has pre-eminently rested ever since Dr. Franklin was no more. Few or none of his contemporary fellow laborers can prefer superior or even equal claims as reformers and improvers of the theory and practice of medicine.' As a signer of the Declaration of Independence he gave public mark to his patriotism, shown already in a thousand other ways.

"2. David Ramsay, — physician, historian, patriot, — of him as a graduate from college Dr. Rush said: 'He is far superior to any person we ever graduated at our college. His abilities are not only good, but great. His talents and knowledge are universal. I never saw so much strength of memory and imagination united to so fine a judgment.' His historical writings were as successful as his practice of medicine, which is saying much, and by every effort he contributed to securing the independence of our country.

"3. John Collins Warren, first professor of anatomy and surgery in the Harvard Medical School, patron of the first administration of ether for surgical purposes, and founder of the Boston Medical and Surgical Journal, one of the first medical publications of the present day.

"4. J. Marion Sims, who revolutionized the practice of the surgical treatment of the diseases of women. He enjoyed a greater reputation than any other American surgeon, operating with brilliant success in all the capitals of Europe. He founded in 1855 the great Woman's Hospital in New York City, and the methods which he devised and perfected are among the richest gifts any member of the profession has ever given to humanity.

"5. Oliver Wendell Holmes, physician, medical teacher, poet, remembered by thousands not more lovingly for his books than by many others, physicians, who by lecture or by printed page have been his pupils. He rendered a great service to the medical profession by first calling attention to the contagiousness of puerperal fever, and his poems and prose writings will be read with delight as long as the language endures."

THE LONGEVITY OF THE TYPHOID BACILLUS IN WATER.

Dr. E. O. Jordan, H. L. Russell and F. R. Zeit have written a paper on the foregoing subject which was published in the November number of the *Journal for Infectious Diseases*. They were requested by the Sanitary District of Chicago, in the fall of 1903, to conduct some experiments upon the life of the typhoid bacillus in the waters of Lake Michigan, the Chicago Drainage Canal and the Illinois River. The purpose of these experiments was to shed light upon the question as to whether the typhoid bacillus could survive the passage from the Chicago Drainage Canal to the mouth of the Illinois River, under the conditions obtaining in the latter stream. From the experiments recorded in this paper the following general conclusions are drawn:

(1) It appears that under conditions that probably closely simulate those in nature the vast majority of typhoid bacilli introduced into the several waters studied perished within three to four days.

(2) It is theoretically possible that specially resistant cells may occur which are able to withstand for a longer period the hostile influences evidently present in water. Our experiments, however, show that if such resistant individuals exist they must be very few in number and constitute only a small fraction of the bacilli originally entering the water.

(3) It is not the intention of the writers to claim that the behavior of typhoid bacilli under the conditions herein described is representative of all conditions obtaining in natural bodies of water.

THE REMOVAL OF GERMS AND DUST FROM RAILWAY CARS.

The management of the Central Railroad of New Jersey has recently installed a vacuum system for car cleaning. An immense vacuum plant has been erected in its Jersey City yards, and for a distance of 3,600 feet it has laid pipe varying from two to five inches in diameter, covering in all about three miles. At short intervals this pipe is tapped and from these cocks is run the flexible hose, which may be taken into the car either by door or window. At the foot of the hose is a metal pipe with a flat triangular end, along the base of which is an opening, and through which the dust and dirt is drawn by the vacuum or "drawing-in machine" located a distance away. The operator runs the slot opening over the cushions, carpets, curtains, woodwork, etc., and without any commotion or dust raising, every loose particle or germ is whisked away, everything being left clean and wholesome. The dust thus removed, before reaching the great "drawing-in machine" must pass through two dust separators, the first of which clears the air of 90% of the grit, dust and germs; the second separator or cylinder draws the air through water in which corrosive sublimate is used, and completes perfectly the purification. The New Jersey Central management has for a long time felt the necessity for a more sanitary method of car cleaning. Two cars can be thoroughly cleaned under the new system at the same expense of time and money as was formerly consumed in cleaning one, and this in connection with sanitary results much more satisfactory.

Correspondence.

"BROWN TAIL MOTH ERUPTION."

Boston, January 20, 1905.

Mr. Editor: Your contributor (Jan. 19) adds but little to the knowledge regarding this affection. Presumably the wheals are produced directly from the local irritant and this should be removed. Alkaline washes containing camphor serve a useful purpose in relieving the pruritus. I was interested in learning how general urticaria is produced in the infested districts. The wind blows the hairs of the caterpillar into the clothes of the "family wash" as they are hung out to dry. This would account for many cases, and although heat would be applied in ironing it apparently does not affect the properties of the hairs.

Very truly yours,

Edmund D. Spear, M.D.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JANUARY 14, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York	3,908,044	1,444	395	21.88	22.99	2.98	.62	1.80
Chicago	1,990,780	543	145	22.69	19.92	3.68	1.29	—
Philadelphia	1,407,908	500	120	21.60	21.60	2.00	2.60	40
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	208	55	25.48	13.93	2.40	.48	—
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,980	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	77	17	23.38	19.48	7.79	—	—
Boston	617,950	232	57	18.96	25.00	3.45	.43	43
Worcester	136,925	37	11	8.10	16.20	—	—	—
Fall River	119,349	28	13	17.85	7.14	—	—	—
Lowell	104,402	40	7	10.00	12.50	—	—	2.50
Cambridge	100,998	27	3	11.11	18.51	—	—	—
Lynn	78,875	29	11	3.45	34.50	3.45	—	—
Lawrence	72,348	12	2	41.65	33.33	8.33	8.33	—
Springfield	72,020	17	4	17.54	5.88	17.54	—	—
Somerville	70,413	21	2	4.76	19.05	4.76	—	—
New Bedford	68,863	26	6	26.92	7.69	—	—	—
Holyoke	50,338	12	4	33.33	8.33	16.67	—	8.33
Brockton	46,001	6	2	16.67	33.33	—	—	—
Newton	39,310	9	3	—	11.11	—	—	—
Haverhill	39,061	11	1	9.09	18.18	—	—	—
Malden	37,205	12	3	16.67	16.67	8.33	—	—
Salem	37,188	—	—	—	—	—	—	—
Chelsea	36,498	14	2	—	14.28	—	—	—
Pittsburg	36,325	10	1	10.00	20.00	10.00	—	—
Taunton	34,577	—	—	—	—	—	—	—
Everett	30,209	13	3	15.40	—	—	—	—
North Adams	29,301	6	0	—	33.33	—	—	—
Quincy	26,798	3	1	—	—	—	—	—
Gloucester	26,127	2	—	—	—	—	—	—
Waltham	25,795	9	—	11.11	22.22	—	—	—
Brookline	23,576	5	1	20.00	—	—	—	—
Pittsfield	22,870	3	—	33.33	33.33	—	—	—
Medford	21,956	13	3	7.70	—	—	—	—
Chicopee	21,692	4	2	—	25.00	—	—	—
Northampton	20,314	4	1	—	—	—	—	—
Beverly	15,867	5	1	—	20.00	—	—	—
Leominster	15,711	5	—	20.00	—	—	—	20.00
Clinton	15,694	2	1	—	—	—	—	—
Adams	14,745	4	3	100.00	—	—	—	—
Attleboro	14,561	3	1	—	—	—	—	—
Hyde Park	14,500	3	0	33.33	—	—	—	33.33
Newburyport	14,478	3	0	33.33	—	—	—	—
Woburn	14,315	4	1	—	25.00	—	—	—
Melrose	13,819	6	0	16.67	16.67	—	—	—
Westfield	13,809	5	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	3	1	33.33	—	—	—	33.33
Revere	13,609	2	—	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,394	6	—	—	—	—	—	—
Southbridge	11,716	2	1	—	—	—	—	—
Watertown	11,575	4	0	—	25.00	—	—	—
Weymouth	11,350	2	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,435; under five years of age, 884; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 718; acute lung disease 711, consumption 386, scarlet fever 25, whooping cough 15, cerebrospinal meningitis 33, smallpox 2, erysipelas 13, puerperal fever 16, measles 10, typhoid fever 32, diarrheal diseases 88, diphtheria and croup 93.

From whooping cough, New York 6, Chicago 4, Boston 2, Adams 3. From scarlet fever, New York 17, Chicago 2, Philadelphia 1, Baltimore 2, Providence 1, Boston 2. From cerebrospinal meningitis, New York 26, Philadelphia 2, Boston, Lowell, Holyoke, Marlborough and Leominster, 1 each. From erysipelas, New York 6, Philadelphia 2, Baltimore 1, Providence 2, Boston 1, New Bedford 1. From smallpox, Chicago 1, Everett 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Dec. 31, 1904, the death-rate was 22.4. Deaths reported 6,567; acute diseases of the respiratory organs (London) 358, whooping cough 105, diphtheria 80, measles 152, small pox 3, scarlet fever 50.

The death-rate ranged from 9.6 in York to 36.7 in Hanley; London 21.0, West Ham 17.0, Brighton 16.1, Southampton 14.4, Plymouth 19.7, Bristol 20.7, Birmingham 26.9, Leicester 12.8, Nottingham 24.9, Birkenhead 19.5, Liverpool 28.0, Wigan 19.9, Bolton 22.3, Manchester 35.2, Salford 28.2, Halifax 22.3, Bradford 23.6, Leeds 23.3, Hull 20.7, Sheffield 27.0, Newcastle-on-Tyne 22.7, Cardiff 21.9, Rhondda 26.4, Merthyr Tydfil 25.1, Whilesden 11.8.

METEOROLOGICAL RECORD.

For the week ending January 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S., 8	29.88	31	36	26	69	54	62	S	W	W	12	24	O.	C.	0
M., 9	30.56	30	35	24	66	47	56	W	S	W	9	9	C.	C.	0
T., 10	30.41	31	40	22	62	48	55	S	W	W	18	17	O.	C.	0
W., 11	30.64	25	29	21	57	51	54	W	N	E	14	5	O.	O.	0
T., 12	30.01	30	37	22	89	95	92	S	E	W	10	5	R.	O.	.47
F., 13	30.17	27	30	15	55	52	53	N	W	N W	17	14	C.	C.	0
S., 14	30.28	15	20	10	49	53	51	N		N W	9	12	O.	C.	0
☞	30.28		34	20			60								.47

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JANUARY 21, 1905.

F. L. PLEADWELL, surgeon. Detached from the Naval Dispensary, Washington, D. C., Jan. 31, and ordered to duty at Naval Hospital, Yokohama, Japan, sailing from San Francisco, Cal., Feb. 14.

R. W. PLUMMER, passed assistant surgeon. Detached from the Naval Hospital, San Juan, P. R., and granted leave until Feb. 15.

W. H. GARTEN, passed assistant surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered home.

G. S. BUTLER, passed assistant surgeon. Detached from the "Constellation" Jan. 18, and ordered to the Naval Hospital, San Juan, P. R., sailing from New York, N. Y., Jan. 21.

A. STUART, assistant surgeon. Detached from the Naval Hospital, San Juan, P. R., and ordered to Washington, D. C., Feb. 15, for examination for promotion, and thence home and to wait orders.

S. S. RODMAN, passed assistant surgeon. Ordered to the "Pensacola."

F. E. SELLERS, acting assistant surgeon. Detached from the "Gloucester" and ordered to the "Franklin."

(Orders issued by Commander-in-Chief of Asiatic Fleet.)

A. R. ALFRED, surgeon. Detached from the "Solace" and ordered to the Naval Station, Cavite, P. I.

C. MCLARTY, pharmacist. Detached from the "Solace" and ordered to the Naval Hospital, Yokohama, Japan.

RECENT DEATHS.

OTIS EUGENE HUNT, M.D., M.M.S.S., died in Newtonville, Jan. 20, 1905, aged eighty-two years.

LEONARD J. GORDON, M.D., of Jersey City, N. J., died on Jan. 17, from cardiac disease. He was born in New York City in 1844, and at the time of the outbreak of the Civil War, he was a student at the New York University. He entered the volunteer service and was first in the 71st New York Regiment and afterwards the 6th New Jersey, of which he became adjutant. In 1872 he began the study of medicine, and in 1875 was graduated from Bellevue Hospital Medical College, New York. He practiced medicine for two years in Jersey City, and was then appointed Chemist of the Lorillard Tobacco Company. He retained this position until 1894, when he was made superintendent of the Jersey City Free Public Library, an institution which he was largely instrumental in establishing.

BOOKS AND PAMPHLETS RECEIVED.

A Manual of Experimental Physiology for Students of Medicine. By Winfield S. Hall, Ph.D., M.D. (Leipsic). Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Mental Defectives. Their History, Treatment and Training. By Martin W. Barr, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Address.

THE RELATION OF THE EPILEPTIC TO THE COMMUNITY.*

BY WILLIAM N. BULLARD, M.D.,
President of the Association.

Members of the Association, Ladies and Gentlemen: I wish to express my appreciation of the honor done me in asking me to preside at this meeting and to say how much it lies at heart with me that we should persevere and insist until we are able to see satisfactory provision made for this class of sufferers, the epileptics.

In New England we have made some definite advances this year. Dr. C. P. Bancroft of Concord has carried out a census of the epileptics in New Hampshire, and through the kindness of Dr. G. Alden Blumer the same has been done in Rhode Island. This leaves Maine and Vermont the only New England States where nothing has been done in this direction.

In this address I should like to say a word on the subject of the Relation of the Epileptic to the Community.

Since the earliest times of recognized government it has always been acknowledged that not only did the governed have plain and evident duties towards the ruler, but that the ruler also had plain and evident duties toward the governed. It is an essential principle of any government in which the governed are not slaves, that the ruler should protect them from assault or injury by other peoples outside their own tribe and nation. As civilization has advanced, and governments have become more liberal, it has been the duty of the rulers to protect their subjects not alone from foreign peoples, but also from the ill-disposed among themselves, and to guarantee them certain rights and privileges, to which it is agreed that they are entitled. In the past century among civilized nations this protection has been carried to a high degree, in some cases even so far as to come into conflict with the independence of the individual. It is universally recognized as a primary duty of government. The only question can be in regard to the proper amount to be afforded. In accordance with this principle of protection of the members of a nation or governed body from ill-disposed individuals of its own number, we find from the earliest times the existence of criminals who were punished in various ways by the rulers. In later days many of these criminals were confined in prisons or in such other manner that they could not do harm to the community, and this became the common custom for lesser crimes. Gradually it was perceived by the more intelligent that there were in the community a certain number of individuals who were dangerous to others, not so much from innate wickedness, as because of mental or intellectual defect. These also should be so placed that the community could not be harmed by them. The insane, therefore, were confined, and when it was finally perceived that they were not wholly morally responsible and that it was not just that they should be placed with criminals, they were put in institutions of their own — mad-houses or asylums.

Again as time goes on, and as our knowledge of bodily and mental conditions increases, as we learn more of the commoner morbid cerebral processes, and as the conditions of life become more complex, we find that distinctions are to be made among those who are properly to be cared for by the community at large, which, with us, is the governing power. We know much more in relation to the proper method of caring for these classes. The intelligent humanity of the world has immensely increased within the past fifty years, and it has come to discriminate not only between the various forms of trouble which it has long cared for, but to recognize with more distinctness and clearness, differences between the morbid, the defective and the healthy. New classes of those unable or but partially able to care for themselves are *now* recognized everywhere in civilized regions, and the duty of the community to care for them is generally admitted. Among these classes in addition to the insane and criminals are those which contain the sick, persons suffering from contagious diseases, the feeble-minded and the epileptics.

The highest proof of true civilization which we possess is often stated to be the care shown for the weaker and less able portions of the community, the women and children. This principle also applies to those enfeebled by injury or disease. The higher the civilization as a whole in the different parts of the community, so, speaking in general, the greater is the care taken of the inferior, both individually and by the government.

That the epileptics who cannot properly be cared for in other ways have a claim to this governmental care can, I believe, be readily demonstrated. The pauper epileptic as a class, forms a danger to the community. A certain proportion of epileptics are well known to be liable to commit atrocious, unprovoked and causeless crimes, and to be seriously dangerous. Even worse for the community, however, is the fact that a much larger number of them are shiftless, irresponsible, liable to drunkenness and petty crimes, vagrant, and at times, dangerous. As their mental condition varies, so it is most difficult for the ordinary person who is not intimately acquainted with them to determine their momentary condition or their degree of responsibility.

It may be urged in reply to these statements, that many epileptics live many years without doing injury to anyone but themselves or any wrong, and this is true. But it is always necessary to remember that there are those whose circumstances are more favorable, whose intellectual capacity and power of self-control are greater either from cultivation or inheritance,

* Address delivered Nov. 23, 1904, before the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.

and in whom the disease is not so violent or possibly does not involve certain portions of the brain. Anyone who has not given careful attention and observation to this subject would be surprised to learn how large a proportion of the pauper epileptics — that is, those who are not able to obtain all the benefits and ameliorations of their condition consistent with a large pecuniary expense — are mentally affected, irresponsible, incapable of earning their living and liable to become vagrants or criminals. That this class is a terrible burden on their relations is evident. They must be supported in idleness, and often their mental condition, irritability, and unreasonableness render them most undesirable inmates of the family. While it is the duty of the relations or family to support such persons to the best of their ability, it is not necessarily a duty that they should be supported at home. On the contrary, as a rule, it is much better both for the epileptic and for his family that he should be supported elsewhere, and in most cases this is best done by paying for his support in some institution specially designed for the care of such patients. The expense of caring for an epileptic in a private institution is so great in New England, that as a rule, it can only be afforded by the rich; and for the average person the state institution is the proper resort.

The question might properly arise in our country, What portion of the government should undertake the care of the epileptics? Should it be the nation as a whole, the state or the city? This question has already been practically answered by custom and convenience. The state has in all cases undertaken this work. Of the direct, practical benefit which this has been to each community by which it has been undertaken, I shall leave others to speak, but there is little doubt that the amount of crime and of smaller offences has been lessened, and that the pecuniary saving, both to the state and to the people, has been great.

Original Articles.

THE STATE'S RELATION TO THE EPILEPTIC.*

BY OWEN COPP, M.D., BOSTON,
Secretary, Massachusetts Board of Insanity, Boston.

THE altruism of the day cannot find worthier expression than may be wrought out in establishing a right relation of organized society to its physically or mentally defective members. The great importance of such endeavor is apparent in even a casual survey of the immediate and remote consequences of inertia or evasion of duty in this direction. Probably none of this numerous host appeals more pathetically than the epileptic for recognition and service.

What obligation does the state owe to such, and what protection require for its own welfare?

* Read at the Fourth Annual Meeting of the National Association for the Study of Epilepsy, Nov. 22, 1904.

It has been declared with authority that "all men are endowed by the Creator with certain unalienable rights," and that "to secure these rights governments are instituted." If this be so, the weak and defective may claim as their just due all the law affords the strong and well, so far as consistent with the general welfare. There can be no limitation of responsibility dependent on difficulty of achievement. The means must be made commensurate to the end, so far as human effort may avail.

Should the epileptic be denied the privileges of every normal child in public schools, should he be prevented from acquiring a training for usefulness and self-support, should he be eventually turned from every avenue of remunerative employment, and fail in the pursuit of happiness by loss of companionship and banishment from scenes of pleasure and recreation, then the state owes him reparation, even to providing a special order of living, care and treatment to suit his necessities.

The humanitarian aspect of his claim is too pitiful and impressive to call for more than passing reference. It is wellnigh self-evident that the activities of the State as of the component individual cannot be restricted to unavoidable obligations, but must extend to humane and charitable undertakings. Through progressive broadening of the conception of public duty and the consequent readjustment of social conditions and relations, "the charity of the present may become the justice of the future." Many projects, humanitarian in motive, eventuate in the wisest economy from a pecuniary point of view. The attitude of the state, therefore, should be one of alertness not to evade but to discover conditions adverse to the welfare of its citizens, and of promptness to respond in measure sufficient for their correction. The state cannot afford better than a private citizen to neglect its business nor to fail to meet its reasonable requirements. The magnitude of initial expenditure should not deter, inasmuch as the differential of income in excess of outgo will be proportionate, the criterion of success in any business enterprise.

Ignored, the epileptic may become a menace to the community through vicious, criminal and degenerative tendencies, reproduction of his kind in successive generations, and impairment or abolition of his earning power, imposing a cumulative burden for his support. Some are exemplary in character, benign of influence, highly intelligent and capable, and live without public display of their infirmity, or with such mild manifestations as not to interfere seriously with the routine of their lives, but as a class they are irritable, impulsive, prone to violence, and baneful in reaction upon impressionable associates. Their neuropathic heredity may furnish a fertile soil easily cultivated by the vicious or spontaneously productive of criminal propensities. Lombroso,[1] has observed such similarity of physical and mental anomalies in the epileptic and instinctive criminal as to convince him of the essential identity of constitutional inheri-

tance in each. Ottolenghi [2] another extremist, discovered among 265 criminals 80 epileptics, more than 30%. So high percentage, however, stretches the term to cover psychic symptoms not generally recognized as epileptic.

On the other hand, Dr. Baker [3] of Broadmoor Criminal Lunatic Asylum, England, contends that "pure psychic epilepsy entirely and absolutely dissociated from typical fit phenomena does not exist as a disease *per se*," and on this basis diagnosed this neurosis in 165 or about 7% of 2,435 insane criminals admitted to Broadmoor in thirty-seven years, of whom 71% were guilty of offenses against the person, of which 95% were homicidal.

Epilepsy tends to shorten life. Relatively few epileptics survive middle age. In the Massachusetts Hospital for Epileptics, whose patients are received at a mean age of thirty-one, the mean age at death is thirty-nine years. In a limited series of cases Dr. Spratling [3] found the mean age at death 29.46years. Snell,[4] a German investigator, in relation to the mortality of insane epileptics, claims that it is about thirty-three years. These ages compare with 55.9 years, for the insane in general, as determined by the analysis of 2,048 deaths in Massachusetts institutions for the insane.

Contrary to the common belief that epilepsy of itself is not a very fatal disease, Dr. Spratling [3] asserts that 28% of epileptics die as the result of seizures, and 12% additional because of accidents incident thereto. This is confirmed by Worcester [5] in a comprehensive study of the vital statistics of many asylums, showing that 20% to 30% of the epileptic insane succumb to the direct effects of their malady.

The malignancy of this dread disease is strikingly exhibited in the excessive infant mortality among the offspring of such parentage and the meagre percentage of healthy descendants. The researches of Echeverria,[6] Jules Tardieu and Martin are instructive in this connection. Together they have reported histories of 703 children of 178 epileptic parents, showing that 24 or 3.4% were still-born, 308 or 44% died in infancy, usually of convulsions, three times the average infant mortality rate in Massachusetts, and that only 131 or less than 19% were apparently healthy at the time of the inquiry. The full life record would probably reduce even this small proportion.

Such strong tendency to self-extinction would soon afford a beneficent solution of the problem were it not counteracted by the regenerative forces inflowing through healthy persons. So favored, reproduction in kind or interchangeable forms of neuropathic taint, such as insanity, idiocy, chorea, hysteria, etc., perpetuate such infirmities. The histories of 3,583 epileptics passing under the observation of Gowers,[7] or in the Ohio Hospital [8] for Epileptics and in the Craig Colony,[8] show the existence of epilepsy in the antecedents of 712 [3] or 20%; insanity in 299 others or 8.3%. Gowers found neurotic heredity in 35% of his cases.

Echeverria [6] made a painstaking study of the health of 553 children born of 136 epileptic parents, finding that 195 or 35% died of convulsions in infancy, 49 or 9% were stillborn or died very young, 78 or 14% were epileptic, 18 or 3.3%, idiotic, 11 or 2%, insane, 97 or 17.7% paralytic, choreic, hysterical or strabismic, and 105, or 19% were apparently healthy. Conceding what many would challenge, that all the infants dying in convulsions were afflicted with epilepsy, this neurosis was transmitted to 49% of the offspring. Only 7 or 5% of the parents had children all of whom reached puberty or adolescence without nervous or mental affection; 68 or one half had some epileptic descendants; 61 or 45% had some descendant insane, idiotic, paralytic, choreic or hysterical. Although these statistics are too limited to warrant final conclusions, and may seem to exaggerate the reality, they reflect, after due allowance, an aspect of epilepsy sufficiently threatening.

Its prevalence cannot be absolutely determined, but investigations in many communities have furnished a fairly reliable basis for estimating the ratio of epileptics to the general population, which varies from 1 to 2½ in 1,000. The proportion of 1½ to 1,000 probably falls within the limits of its actual occurrence. Accordingly there should be approximately 120,000 epileptics in the United States, and 4,650 in Massachusetts.

Their productive capacity under ordinary circumstances is very small. Many are too young to be wage earners, but their relation to the family differs widely from that of the normal child. Instead of a source of comfort and helpfulness in many little ways to the household, they are objects of solicitude, and tax unremittingly its energies for care and its resources for medical treatment in the elusive hope of cure. Unaided in the main by the usual provision for education, their development entails an extra and often impossible expense.

About one half the adults who are admitted to institutions for such have never had an occupation, and few of the remainder have ever pursued one with regularity. Thus the common and almost inevitable lot of the epileptic is dependency. The resulting indirect burden upon the public is incalculable, but probably far exceeds the direct tax, appearing in the enormous loss of production from so many idle brains and hands, the incessant drain upon private means for care, necessary medical treatment and the ceaseless search for a panacea, and often the ultimate impoverishment and physical breakdown of care takers, whose strength has been sapped by excessive and prolonged demands.

The direct tax is more apparent, and can be estimated with some precision. There are more than 1,100 epileptics under public care in Massachusetts, which requires a permanent investment in land, buildings and equipment amounting to over a million dollars, and an annual expenditure for maintenance exceeding $200,000. The whole annual direct public outlay on their account does not fall short of a quarter million dollars.

From these premises it would appear, on the one hand, that the epileptic has a right to all the privileges of the normal child, so far as not in conflict with the general welfare, and is reinforced in his claim by humane and altruistic considerations; and, on the other hand, that the public is in duty bound to respond efficiently, not only on the ground of justice, but also of good business method, ultimate economy, and safeguarding the general health and morality against a danger more insidious, but not less threatening than infectious disease and crime.

What then should be the general policy of the public in dealing with these defectives?

The creation of a special order in their behalf is not desirable, so far as the ordinary régime is adequate or capable of expansion to meet their needs without detriment to the interests of normal associates. Should home environment be salutary and suitably guarded against deleterious influences; should the degree of the malady allow attendance in the public school and the acquisition and pursuit of a trade or other useful calling in common with the more fortunate; should they be admitted to the fellowship and amenities of community life, then should they live therein, and too great insistence cannot be laid upon the duty of friends and neighbors, as of private and public charity, to promote for them such a lot. The reasonable goal of such endeavor marks the boundary whence begins the duty of the state.

The primary need relates to provision and training for the young epileptic. The disease has its beginning usually in the formative period of life, developing in one fourth of cases before the age of ten, in about one half between ten and twenty, or three fourths under twenty years. Hence the infirmity largely precludes common opportunity for education and useful training. The indulgent sympathy of parents excuses in the afflicted child unwilling application to reasonable tasks, and condones conduct which merits reproof. The prolonged medical treatment necessitated by the chronicity of the malady, the careful restriction of diet and regularity of living are usually impossible to secure in the average family, whose means are limited, and who cannot appreciate oftentimes the imperative nature of these essentials. So the epileptic child grows up without adequate medical treatment, untrained, idle, undisciplined and intractable.

At this stage he usually comes to public notice. Three quarters of visible epileptics, as enumerated in the last Massachusetts census, had passed the age of twenty years, the inverse of what might be expected from the early onset of the affliction. The mean age of patients admitted to the Massachusetts Hospital for Epileptics is thirty-one years, and the average previous duration of epilepsy, nearly thirteen years. Such dilatory policy results in dealing with confirmed and terminal conditions. Prompt attention would have afforded better hope of cure, instruction in useful occupation, formation of habits of industry, conducive to the amelioration of symptoms, better self-control, greater tractability and far larger measure of happiness and contentment, all tending to reduce the public burden, which must ultimately be assumed, if not under these conditions, then in almshouses, asylums and prisons.

In determining the extent of such need, the example of the London School Board might well be followed, by whose direction Dr. Shuttleworth,[9] in 1900 and 1901, examined all epileptic children of school age known to its officers, finding 470 such, a ratio of about 1 to 1,000, of whom "17% seemed fit to continue in normal schools, 27.5% were so far mentally impaired as to require instruction in 'special classes' for defective children, 40% required to be cared for and taught in a residential school for epileptics, 15.5% seemed unfit for any education, requiring only medical and nursing care."

On this basis Massachusetts should have some 500 epileptic children of school age, of whom 222 would be suitable for instruction in ordinary schools or in "special classes" connected therewith, and 278 would require special provision in public institutions, of whom 78 would need only custodial care and 200 would be teachable.

Dr. Shuttleworth states that since the promulgation of his report "a large number of children whose parents kept them at home merely on the ground of their being subject to fits have been brought into school attendance."

Such effort would seem to be a duty devolving upon public school committees. The state should supplement their efforts by providing:

(1) A center for study, research and teaching in relation to epilepsy, well officered and equipped, to afford scientific treatment to patients both within its care and at home, through advice to indigent parents and friends who may wish to avail themselves of the aid, and, in conjunction therewith, schools for elementary education, manual training and persistent drilling into habits of doing simple, every-day acts of helpfulness to the family or the institution.

(2) Colonies, independent or associated with such a center, which the adult epileptic, thus trained, may enter, and find a home in place of isolation in society, and industrial opportunities graduated to his capabilities, under conditions suited to his peculiarities and the utilization of his productive energy.

(3) Custodial provision for the infirm, intractable and insane epileptic.

The trend of this policy is toward segregation of epileptics, both in the classification of public wards and apart from the general community. Its successful issue would afford the chief check upon heredity transmission of the degenerative taint.

There will always be, however, many of these unfortunates in the community without protection. Hence arises the query whether it might be furnished by legislation. The conservation of race virility was an ancient as well as modern aspiration. It was the Spartan's motive in exposing to death the weaklings of his offspring. The early Greek church [9] made epilepsy a barrier

to marriage. The ecclesiastical laws [6] of Saxony and Denmark, in the eighteenth century, sanctioned divorce because of it. The primitive Scots [6] castrated male epileptics, and prohibited under extreme penalty cohabitation with such of the female sex. The gradual quickening of public consciousness to an appreciation of the peril impending from defectives has recently incited Connecticut, Nebraska, Minnesota and Pennsylvania to restrictive and punitive legislation against the marriage and illicit relations of such during the child-bearing period. The law of Connecticut was enacted in 1895, as follows:

SECTION 1. No man and woman, either of whom is epileptic, imbecile or feeble-minded, shall intermarry or live together as husband and wife when the woman is under forty-five years of age. Any person violating or attempting to violate, any of the provisions of this section shall be imprisoned in the State prison not less than three years.

SECT. 2. Any selectman, or any other person who shall advise, aid, abet, cause, or assist in procuring, or countenance any violation of section 1 of this act, or the marriage of any pauper when the woman in such marriage is under forty-five years of age, shall be fined not less than one thousand dollars or imprisoned not less than one year or both.

SECT. 3. Every man who shall carnally know any female under the age of forty-five years who is epileptic, imbecile, feeble-minded, or a pauper, shall be imprisoned in the State Prison not less than three years. Every man, who is epileptic, who shall carnally know any female under the age of forty-five years, and every female under the age of forty-five years who shall consent to be carnally known by any man who is epileptic, imbecile, or feeble-minded, shall be imprisoned in the State Prison not less than three years.

Massachusetts long since legislated inadequately in the same direction concerning the insane and idiotic, namely:

"An insane person or an idiot shall not be capable of contracting marriage." (Sect. 5, Chap. 151, Revised Laws.)

"Whoever has unlawful sexual intercourse with a female idiot or imbecile under circumstances which do not constitute rape shall, if he had reasonable cause to believe that she was an idiot or imbecile, be punished as provided in Section 3." (Sect. 5, Chap. 212, Revised Laws.)

The restrictions imposed should embrace the epileptic and feeble-minded also. Although the scope of this subject is too broad for present discussion, its importance impels to thought and deliberate action.

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THE TUBERCULOSIS PROBLEM, AND SOME SUGGESTIONS IN DEALING WITH IT.*

BY EDWARD O. OTIS, M.D., BOSTON.

KNOWLEDGE so often brings responsibility; and now that tuberculosis is recognized as a contagious or communicable disease, the responsibility of the physician, the health officer and the layman regarding this disease becomes a definite and grave one, and ought to be strenuously fulfilled in the light of our present day knowledge. Each of the three members of the social organism has his special individual duty in the matter; each has his special opportunity, and all can co-operate in this conflict against tuberculosis. The physician must be the teacher, for he possesses the special knowledge and experience requisite for the intelligent leader in the struggle. The health officer must be the executive for he possesses the power. The layman must be the common soldier, and be willing to trust and follow the leaders. Hence the supreme importance of intelligent, conscientious, courageous boards of health.

The main point of attack is *prevention*, a statement easy to make, but hard of fulfillment. To prepare for the attack the community must be enlightened as to the necessity of all this effort; that is, they must be taught the prevalence of the disease, and the great direct and indirect loss sustained by the community through its ravages; they must be made to realize that it is a terrible scourge which threatens all, and so often strikes down the choicest specimens of manhood and womanhood in the very flower of their age. Moreover, they must be taught that it is a preventable, avoidable disease like typhoid fever, for example; that it is principally conveyed by the dried sputum of one suffering from the disease; that its onset is insidious, and, therefore, they must be taught what are the easily recognizable, suspicious symptoms; further, that it is principally curable or capable of arrest at its beginning.

How is this educational propaganda to be effected? By much the same means that are used in conveying any other instruction,—through individual and organized effort. For instance, each town has one or more schools. Simple talks by the physician or health officer, or even by the teacher, can be given the children, with literature upon the subject. These talks can be further emphasized by the teacher. The children, in their turn, will become teachers, and convey the knowledge thus acquired to those at home. Again, a public meeting can be arranged, and some speaker from outside asked to present the cause, illustrating it by means of charts, diagrams and the stereopticon. Notices of such meetings can be reported in the papers; and the press, most potent of all teachers, will thus do its share of instruction. In towns where there are factories, the operatives can be assembled and told just what they can do to avoid contracting the disease or infecting others with it. Church vestries can be utilized for the same purpose, and the clergymen enlisted in the work.

The various means used in this educational propaganda, as well as those in the relief and control of the disease, can best be co-ordinated in the form of tuberculosis associations, and each

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town and city can and ought to form such a union of workers in this cause. Organized effort is always more effective, and one works or contributes with more zealousness if he feels he is a part of a united body, for thus one member inspires another. Such an association must be made popular, everyone asked to join it, and provided with work in some way, and the fees, though small, will thus provide for the necessary expenses. Not only the subject of tuberculosis proper is to be presented and the direct means of avoiding it, but as well the indirect means, such as pure air, proper food, sufficient rest, avoidance of alcohol, and, in brief, personal, house and factory hygiene should be given a prominent place. The family physician and the clergyman can do effective individualistic work through this opportunity of frequent entrance into the homes of the people, impressing upon the inmates the supreme importance of wholesome living, fresh air and cleanliness.

The time seems now to have fully arrived for placing tuberculosis in the list of contagious, reportable diseases. By no other means can a board of health obtain the knowledge of the cases of this disease in their community. Such knowledge need never be made use of in any objectionable way, but simply to remind the family of the consumptive that they may contract the disease unless proper and effective means of disposing of the sputum are employed; and, furthermore, the board of health should see to it that no member of the family, or anyone else, should occupy the room where the consumptive has lived or died until it has been thoroughly disinfected and renovated, and this, of course, implies a reliable disinfectant outfit on the part of the board of health.

In the past how often almost entire families have been swept away, one member after another, because the disease was communicated from one to another through the ignorance of the contagious nature of the sputum, the common belief being, as we all know, that the disease was inherited, that it " run in the family," and there was nothing to do but bow to the inevitable. In one of the districts of the Boston Dispensary three children were successively affected with this disease and died, the eldest twenty-four, the youngest sixteen, the result undoubtedly of communication through the lack of proper hygienic precautions. " Had it been possible," the physician goes on to say, " to have separated the first case from the family at the time the diagnosis was made, during the incipient stage, I believe it would have been possible to have prevented further extension of the disease."

The loss, the sorrow, the disappointed hopes and the increased pecuniary burden placed upon the community through the support of poor consumptives and those dependent upon them must be made so real and vivid that it will lead to definite action and precautions. Nothing is harder than to eradicate long-cherished beliefs, and it must be by repeated and strenuous insistence upon the present well-known fact of the contagious nature of the disease that the people are to be disabused of the old belief that consumption was inherited and there was no cure for it, and, further, that fresh air was injurious to one suffering from the disease. It is quite as necessary to preach the gospel of fresh air — fresh air by night as well as by day, fresh air in the church and workshop as well as in the home, fresh air in the bedroom as well as in the sitting room — as it is to advocate the more direct measures of prevention. Indeed, if we are ever to eliminate consumption, it must be largely through elevating the standard of wholesome living, for the tubercle bacillus dreads a normally well person who feeds his lungs on pure air and his blood with the products of wholesome food, and who is not afraid of water upon his skin.

Again, the physician must teach his people the paramount importance of an early recognition of the disease, and must realize that fact himself. Loss of strength and weight, easy fatigue, dyspeptic symptoms, a little shortness of breath, a so-called cold which persists or an occasional cough, especially in the morning, or the occurrence of a little blood in the sputum, are all suspicious signs, and if the temperature shows a regular afternoon rise even if but a fraction of a degree, the suspicion is greatly strengthened. Any individual, when once his attention is called to these symptoms as possible ones of pulmonary tuberculosis, will be eager to consult his physician when he observes some or all of them in himself.

The avoidance of promiscuous spitting must be insisted upon in the most strenuous manner, both by word of mouth and printed placard. Selfishly, every one has a personal interest in this matter. If one's spitting neighbor has no realization of the danger he may be exposing others to, or no sense of obligation to his fellow workmen or companions, self-protection must compel him to deposit his sputum in a safe place or expel him from the workshop or from association with others.

The unsanitary condition of workshops and factories, lack of sunshine and proper ventilation, the presence of one or more walking consumptives spitting upon the floor or in a dry cuspidor which is not cleaned every day, or upon the handkerchief, create quite ideal conditions for the spread of this slow, insidious disease. Undoubtedly, walking consumptives in shops and factories who are careless in the disposal of their sputum are causes of a large amount of tuberculosis. Take an example. A young girl nineteen years old was found by the district physician sick in bed, suffering from consumption in the most advanced form, who, as long as she was able, was employed in a candy factory. This factory employs a large number of young Italian girls, and this is not the first instance of consumption among them, while tuberculosis in other forms has also been observed.

Factory inspection at stated periods, inspection not only of the buildings, but the occupants, anti-spitting placards, talks to the operatives upon the subjects, are means to obviate this dan-

gerous condition of things. Many cities now have school inspection. Could not this be done, at least occasionally, in the country schools?

Why should tuberculosis be as prevalent as it is in country communities in this latitude? Bad air and lack of ventilation in the country houses is the chief contributing cause, I believe, and only second in importance is the ignorance of proper food constituents and poor cooking. Because the air of a room is cold is no proof that it is pure. What is viler than many a "spare chamber" or parlor, in a country house, never heated in the winter, and never ventilated either in summer or winter, unless, it may be, the sitting room with a tight coal stove and double windows? Now, I do not mean to say that bad air, or anything else but the tubercle bacillus will cause pulmonary tuberculosis, but I do assert that there is no more potent promoter of the favorable soil for the germination of this organism than the unventilated rooms in country houses, and, next, poor and badly cooked food. A constant and continuous diet of well-cooked oatmeal, for example, and plenty of milk, although it might in time become monotonous, would be far more wholesome, I believe, than many of the menus of country homes. Not only nutritious food, but in sufficient abundance, is necessary during the colder months in this latitude.

Do all we can in all these various ways to prevent the disease, it will still prevail amongst us for many years to come, for old habits and ingrained ideas are hard to change. What, then, shall we do with the consumptive? First, render him innocuous to those about him; second, we must give him the best treatment for the arrest of his disease. The first condition is answered in a word,— the proper disposal of the sputum. A spit-cup at home, where the sputum is always kept moist, and frequently boiled or destroyed; separate eating utensils; a handkerchief or cloth held before the mouth when coughing; washing out the mouth and nose frequently; a separate bedroom, with no carpet or upholstery, and which is exposed to sunlight and constantly ventilated; abroad, a pocket spit-cup, a paper bag or Japanese napkins. Where there is no dried sputum there can be no danger of infection.

Most cases of consumption must be treated as best they can at home. The present experience of all civilized countries, however, is overwhelmingly in favor of sanatoria as the best, quickest, most successful and most economical method of treatment. Germany is not a rich country and is very practical and conservative. She has made clear her conviction, however, that the cheapest and most successful method of dealing with tuberculosis is through the sanitorium, in that she has erected ninety or more such institutions for the poor working people with accommodations for many thousands of consumptives. More than a dozen like institutions have been already established in little Switzerland, and so have a majority of the civilized countries of the world had the courage of their convictions and built such institutions.

It is needless to say that the sanatorium treatment is thoroughly established on the firm basis of experience and results. It is always easier to do a thing when those around us are doing the same thing and for the same purpose, and when all are guided and inspired by one mind. Furthermore, when the same general plan of treatment exists for all, it can be more perfectly and effectively fulfilled for a number than for a single person. Hence the theoretical superiority of the sanitorium treatment which has been proved by results to be actual.

At the home of the consumptive, however, the sanitorium idea can be at least partially carried out. First, provide against communication of the disease to the other members of the family as has been indicated above. Second, provide fresh air continuously for the patient; a piazza, a "lean-to," a simple shed in the yard open to the south, for occupancy by day, and a large-sized room for sleeping by night, with the windows always open except when undressing and dressing. At first such an abundance of fresh air seems to the patient quite overwhelming, but experience has proved that he soon becomes accustomed to it. Thirdly, we must see that food, abundant and well prepared, is provided for the patient, and that he eats not only to maintain his weight, but to increase it, for a consumptive is generally under weight. The house or tenement occupied by the consumptive may be small and the conditions unfavorable, but ingenuity on the part of the physician, with the co-operation of the patient and his friends, will produce some quite wonderful inventions for facilitating the fresh-air cure.

The other details of the treatment — rest, bathing, exercise, mental diversion, what to do and what to avoid — will all be carefully arranged for by the careful physician, and I will not consider them on this occasion. One thing, however, in this connection I desire to strongly emphasize, and that is that drugs, medicines, have very little to do in the treatment of tuberculosis. There is no specific or cure for the disease in any drug or combination of drugs. Probably they do more harm than good by impairing the digestion. Remedies galore, patent and unpatented, are advertised as cures, but most of them are devised to fill the pocketbook of the promoter and deplete that of the poor sufferer. The few drugs that are used in treating the disease are those used temporarily for special symptoms, such as something to allay the night sweating, for instance, or to relieve a constant, irritating cough. It is marvellous how often the consumptive responds to the fresh air and food treatment, if we can catch the disease in its incipiency, before large portions of the lungs have become diseased; and so I insist again upon the supreme importance of an early diagnosis and prompt treatment.

In France the large mortality of 150,000 deaths from tuberculosis a year is mainly attributed to two causes: unhealthy dwellings and alcohol.

The latter cause, alcohol, exists everywhere, and in our fight against tuberculosis we must join the forces arrayed against intemperance in the use of alcohol. When one is well fed and well aired, so to speak, he does not need or feel the need of alcoholic stimulants. Therefore preach good food and fresh air as the most powerful influences against strong drink.

The most valuable asset of any community or nation is healthy, strong inhabitants, and these are obtained by protection from pernicious influences and proper culture. Good fruit is produced by the protection of the plant from injurious influences, weeds, insects and the like, and by affording a soil favorable for the normal development of that particular plant. So with the human being; protect him from the various debilitating influences and specific infection; and afford him favorable conditions for healthy, normal growth, and the result will be a healthy, normal man, even if he may have had an indifferent inheritance.

With tuberculosis we must continually insist upon the danger of tuberculous sputum, and hence the positive danger, always present, of promiscuous spitting; and, secondly, insist upon the importance of wholesome living — fresh air, good food, rest and cleanliness. We shall never stamp out consumption by directing our efforts solely against the source of infection. We must also labor to promote conditions of wholesome living; teach the people the elements of personal and house hygiene; teach them what is and how to obtain this wholesome living. On these two lines of effort must we depend in our exertions to stamp out the disease.

THE TREATMENT OF HEMORRHOIDS BY THE GENERAL PRACTITIONER.

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IT should be within the province of every general practitioner to successfully treat the more common rectal diseases. That all patients do not get the careful consideration they deserve is sometimes apparent to one who sees many such cases. There is no branch of surgery or medicine that will be more satisfactory to the practitioner than the proper treatment of rectal affections. The reverse, however, holds true when the same ointments, the same suppositories and the same laxatives are prescribed in all cases. Within the past decade there have been many advances in rectal surgery, and a great effort has been made by a number of earnest workers in this country and abroad to elevate this specialty to the place it deserves with the profession. It is to be hoped that the days of the advertising "pile quack" are numbered and that soon all these unfortunate sufferers will receive the consideration from the profession that their importance merits.

Of the different diseases of the rectum, in private as well as in hospital practice, hemorrhoids are most frequently met with. They may be briefly classified as external and internal. Of the external hemorrhoids but two forms are common, namely, the thrombotic and the external connective tissue hemorrhoid. A thrombotic hemorrhoid is an extravasation of blood at the anal margin beneath the skin covering the external sphincter extending slightly into the anal canal. This condition is very painful for two or three days, that is, until the clot has been absorbed to the extent of relieving the pressure upon the sensitive nerves at the anal orifice. The thrombotic hemorrhoid is sometimes mistaken for strangulated internal ones, and much unnecessary pain has been caused by attempts at their reduction. They are caused by straining at stool, lifting, or by a paroxysm of coughing, when suddenly a painful swelling, cystic in character, of an oval or circular shape, appears at the anal margin. The size may vary from that of a pea to a small English walnut. They are usually single, or there may be two or three.

In a case very recently under the writer's observation three different extravasations took place within three weeks, which were at last accounted for by the fact that the patient had misinterpreted the instructions that had been given him by his physician to cure his constipation. He had been told to go to stool every morning in order to establish regular habits. While at stool he would strain violently and in this manner caused three different thrombotic hemorrhoids. When there is a history of hemorrhoids developing suddenly, and accompanied by pain in a patient previously free from this affection, this condition may be expected.

Their treatment is simple, effective and at once relieves the patient of all pain. With a hypodermic syringe to which is attached a fine, sharp-pointed needle, inject a 1% solution of eucaine in the following manner: with the left index finger and thumb grasp the peri-anal skin near the swelling and pinch for a moment to numb the part and then insert the needle very superficially just under the skin, slowly injecting the whole of the top of the tumor well over into the anal canal. It is best not to inject within the swelling, but simply in a line of the proposed incision. Then with a curved bistoury transfix the base of the swelling and cut outward. The clot usually expels itself, but if necessary curette lightly and pack firmly with a strip of iodoform gauze, which should remain *in situ* for twenty-four hours that another clot may not form. This simple, painless operation is at all times successful, and will be much more grateful to the patient than lotions, ointments or other palliative measures.

That form of external hemorrhoids, known as "connective tissue hemorrhoids," "fleshy piles," "skin tabs," etc., is simply redundant folds of peri-anal and anal skin, caused by the stretching in this region during the passage of large, hard fecal masses. The over-stretching causes the normal folds to be slightly torn, at which point a mild infection takes place, on the subsidence of which the folds do not contract to their former

size. When inflamed, they become excessively painful and render walking and sitting difficult. The external sphincter is sometimes much hypertrophied and thickened. When acutely inflamed and the external sphincter is not hypertrophied, a palliative course should be advised. The constipation from its etiological importance should receive attention with appropriate laxatives. The following treatment as recommended by Goodsall and Miles of London has been found very satisfactory. After bathing the parts with warm water and drying, carefully wipe the anal region with cotton wool which has been wet with olive oil. This removes all adherent secretions, as well as ointments which may have been used previously. After this has been done, apply the following ointment:

℞ Zinci oxid., ʒii
Linimenti camph., ʒss
Vaseline, ʒi

Fiat. Ung., Sig. To be used at night, and dust during the day with a powder composed of

℞ Zinci oxid., ʒss
Pulv. camph., ʒii
Pulv. amyli., ʒx

Fiat. Pulverum

After the acute symptoms have subsided, the following simple procedure will prevent further trouble. After injecting with eucaine 1%, using antiseptic precautions, these hemorrhoids may be removed with a pair of curved scissors and the resulting wound allowed to heal by granulation, or if the base of the hemorrhoid was broad, the wound may be united with catgut sutures. When the folds are numerous, only two or three should be removed at one time lest anal contraction take place. Later, should it seem necessary, any remaining may be similarly dealt with. As previously mentioned, the external sphincter is sometimes thickened and hypertrophied and an anal fissure or painful ulcer may complicate external hemorrhoids. Therefore, we must not jump to the conclusion that inflamed external hemorrhoids are the whole trouble when called to a case. The following in this connection demonstrates well the futility of local treatment when such a complication exists.

On Nov. 11, 1904, I was called to see Mrs. W., age twenty-six, whose symptoms began one week before childbirth with slight pain at defecation. For six weeks she had been gradually getting worse. The pain had become continuous and sitting or walking was almost impossible.

Rectal Examination: There were three large external hemorrhoids acutely inflamed; external sphincter spasmodic and irritable to touch; unable to make digital examination. As patient had received the best of palliative treatment from her physician without avail, an operation was advised for the next day. She was in such a nervous state from loss of sleep and pain that an ether operation was decided upon.

November 12. Under ether anesthesia I divided external sphincter in right posterior quadrant, found linear ulcer three quarters of an inch long just inside external sphincter near upper border of which were two small polyphoid growths which were removed. The three large external hemorrhoids were removed with scissors. One very small internal pile was ligated. A perfectly normal recovery took place in ten days. Absolutely free from all pain immediately after the operation. In this instance the infection evidently took place from the ulcer just within the anal orifice, but from external appearances one would only have expected an attack of inflamed external hemorrhoids.

Internal Hemorrhoids. — Since operations, as the ligature and clamp and cautery, will absolutely cure all cases of internal hemorrhoids, it is customary whenever a patient seeks advice, complaining of "bleeding and that lumps come down," to immediately recommend the operating table, and sometimes even without the formality of a rectal examination. That the great majority of cases of internal hemorrhoids can be operated upon under local anesthesia or otherwise satisfactorily dealt with is not always recognized. Dr. Gant of New York, in a recent communication to the *New York Medical Journal*, makes this statement: "It is difficult to understand why surgeons continue to insist that patients forego business and social engagements, enter the hospital and submit to operations requiring general anesthesia for the relief of rectal ailments which could be radically cured in the office by medicinal agents or by trivial operations under local anesthesia. Recently the writer has not sent more than one in ten of his private patients to the hospital, because he has found that they can be successfully treated in the office."

Under date of Oct. 29, 1904, *New York Medical Record*, Dr. Gant reports one hundred and twenty-six cases of internal protruding or bleeding hemorrhoids that were operated upon by sterile water anesthesia as follows: 116 by ligature, 6 by incision and 4 by clamp and cautery. He further states that, "except for the stinging pain sometimes induced in the beginning of the distension, the patient has but little discomfort during and immediately following the operation." This paper would lead one to infer that the ligature operation was the one of choice, but whether this method is capable of application in all cases we are left in doubt.

The author of this article has never operated upon a case under local anesthesia when there were more than three bleeding and prolapsing tumors, believing that, as more extensive operations necessitated the patient's confinement to bed, there could not be the same objections to a general anesthetic. Nor have the clamp and cautery and incision methods ever been tried by the author for the reason that the ligature method is, if anything, more effective, requires less manipulation of the parts, and can be performed in much less time, which is an important consideration when operating under local anesthesia. To better illustrate the plan of treatment of internal hemorrhoids without the use of a general anesthetic the following histories are submitted:

May 2, 1904, A. K., age forty-three, married, occupation, nurse. Duration of rectal disease, twelve years. Complains of aching pain over dorsal aspect of sacrum. Has had hemorrhages at defecation for three years, which are considerable at times. Says there are pro-

trusions from the anal orifice at all times which greatly interfere with sitting or walking. Has an abundant and jelly-like discharge. Constipation alternating with diarrhea.

Rectal Examination: Peri-anal skin normal, anal orifice closed. There are three redundant folds of anal skin (external hemorrhoids). The external sphincter is slightly relaxed. In the anal canal there are five good-sized hemorrhoids protruding at examination. The internal sphincter and levator ani possess good power. In this instance, owing to the size and number of the hemorrhoids, an operation under general anesthesia was advised, but, as the patient was "out on a case" which she was much averse to leaving, the injection treatment was successfully carried out as follows:

On May 16, the colon having been emptied by means of a saline cathartic and a large enema of soap and water, taken three hours previously, she reported for the first treatment. The hemorrhoidal masses were rendered surgically clean by bathing the parts with soap and water and a bichloride solution. The right and largest hemorrhoid was slowly injected with twelve drops of Shuford's solution, the formula for which is

℞ Acid Carbolic, ℥ii
Acid Salicylic, ℥ss
Sodii Biborate, ℥i
Glycerine (sterile), qs ad ℥i

After the injection, the hemorrhoids were returned within the bowel, a one-grain opium suppository inserted and a T bandage with moderate pressure over the anus applied. Directions were given to move the bowels on the second night with ext. cascaræ sagradæ ℥ss and to secure daily evacuations thereafter with the same laxative. The remaining hemorrhoidal tumors were treated as above described, except that the amounts of the solution injected were less as the hemorrhoids were smaller. The amount varied from five to eight drops. But one hemorrhoid required a second injection. The injections were made one week apart, and neither ulceration nor pain followed any of the treatments. After the injections were completed, two of the redundant folds of external skin were removed under eucaine, as has been described.

November 10, three months after the last treatment, patient reported all symptoms relieved, no hemorrhages or protrusion. Examination shows a normal condition of the anal canal.

This case is cited to show the satisfactory results that may be obtained with the injection treatment, a method that has been decried by many as unsurgical. Like many other procedures, its use in unskilled hands has brought this form of treating internal hemorrhoids into disrepute. Nearly all the solutions used contain carbolic acid.

Dr. Collier F. Martin of Philadelphia, who treats all cases of internal hemorrhoids by the injection method, uses phenol sodique and distilled water, equal parts, freshly prepared. He emphasizes that the French preparation phenol Boboeuf is the most satisfactory. This preparation was used by Dr. Martin's father in four thousand cases, while the doctor himself has employed it in over six hundred cases. With phenol sodique the writer has had no experience. The aim should be to secure an injection which will set up the necessary inflammation in the hemorrhoidal mass to cause a gradual obliteration of its vessels, and at the same time a formation of fibrous tissue takes place which binds the mucous membrane of the anal canal closer to the muscular layer of the rectum. The injection should not be strong enough to cause sloughing of the hemorrhoidal tissues.

The writer does not wish to be understood as an enthusiast over this method to the exclusion of others, but does believe that in properly selected cases, where the external sphincter is somewhat relaxed, or can be gradually dilated without too much discomfort to the patient and the tumors exposed for injection, perfect results may be expected. However, when the hemorrhoids are not very large, or over three in number, they may be treated radically and in less time by the ligature, as the following case will illustrate:

W. H., age forty-seven, married, occupation, wine merchant. Duration of disease, three and a half years; no pain. Is losing large amounts of blood at stool, is markedly anemic and reduced in weight from 180 to 162 pounds. Constipation is relieved by the use of aperient pills.

Rectal examination: No folds of redundant skin; external sphincter normal, that is, not irritable or hypertrophied. Two capillary or nevus-like internal hemorrhoids, one to the right and one to the left of the post median line. Do not protrude, but can be brought to anal orifice by manipulation. When patient strains down a general oozing of blood takes place. Internal sphincter and levator ani good power. Examination of rectum and sigmoid with pneumatic proctoscope negative.

November 11, under eucaine anesthesia, in office, I ligated the two bleeding hemorrhoids with separate ligatures. A pile hook was used to secure the right and an artery clip to bring down the left with. With a pair of straight, sharp scissors an incision one fourth of an inch in depth was made about the base of the tumors at the muco-cutaneous junction which separated them from their attachment to the muscular layers of the rectum. Each hemorrhoid thus freed was tied with a well-sterilized plaited silk ligature, size No. X, an assistant making slight traction over the instrument holding the hemorrhoid down as this was done. These hemorrhoids did not protrude, but under eucaine I was able to ligate them high up with but slight inconvenience to the patient.

Three days later patient returned to office. Has been to place of business daily since operation; complains only of soreness. Passed some blood at first movement of the bowels, but none at the second. November 18, one week since operation, soreness only. Rectal examination shows ligatures to have separated. Has been no bleeding since first stool after operation. Seven weeks after this operation his family physician told me that Mr. H. had gained twenty pounds in weight, the anemic condition had disappeared and that his general health and strength was better than it had been for years.

Those cases in which the hemorrhoids protrude will be found easier to operate upon under local anesthesia than the case just described. When there is redundant skin corresponding to the internal hemorrhoid to be removed, the author

adopts the U-shaped incision, as recommended by Goodsall and Miles,[1] by means of which the ligature "includes both the internal hemorrhoid and its corresponding fold of skin. The advantages of this modification are that one ligature answers for both the skin and the internal hemorrhoid, that often it is not necessary to remove any skin subsequently to the operation, and that the operation is much shorter."

The writer has seen this operation performed many times by Mr. Goodsall at St. Mark's and Mr. Miles at Gordon's Hospital, London, side by side with the ligature method as performed by the other surgeons of those institutions. These two hospitals, as may be known, treat only diseases of the rectum, and the amount of clinical material is practically unlimited. These cases were seen daily in the ward, followed until discharged, and the advantages of the modification seemed to the writer to be: That the correct amount of redundant skin was much better estimated and that there was not so much danger of anal contraction from removing too much, or the opposite annoying mistake of leaving irregular skin tabs to become inflamed later.

In conclusion the author wishes to reiterate that the great majority of cases of hemorrhoids of whatever form can be treated radically, satisfactorily and with little discomfort to the patient at the physician's office. It should also be emphasized that the after treatment of these cases requires careful attention. The bowels, as a rule, should be confined for forty-eight hours. On the second night, half a drachm ext. cascaræ sagradæ fl. should be given and sufficient thereafter to secure daily evacuations. The anal region should be kept scrupulously clean, and a pad of cotton wool, wrung out of bichloride solution, $\frac{1}{1000}$ placed over the anal orifice is more acceptable to most persons than a dry dressing. Good drainage must be secured and the necessary topical applications made to induce rapid healing. Should there be much pain or soreness (which is rarely the case), it can be relieved by anodyne suppositories of morphia, cocaine, or combinations of both.

An irritable or hypertrophied external sphincter is occasionally the cause of pain after these operations. This complication can be avoided by a complete division of both layers of the muscle, a painless operation, under eucaine. On no account should the internal sphincter be damaged as incontinence might follow.

[1] Diseases of the Anus and Rectum, p. 292.

CONSUMPTION AND ITS BORDERLAND. PUBLIC AND PROFESSIONAL CONCERN.*

BY PAUL PAQUIN, M.D.,
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* Read by invitation before the Ohio Valley Medical Society, Evansville, Ind., Nov. 9, 10, 1904.

NOTWITHSTANDING the gigantic advancement of medical science from the time of Hippocrates, particularly in the last half century, the mortality due to tuberculosis remains practically in the same ratio in most countries as it was then. A fifth or so of the death-rate still occurs through its ruthless effects. It is still the most widely scattered, the most prevalent, and the *one* perpetual plague universally. It still consigns to the tomb more people than the slaughter of war in all its atrocious forms. The death-roll of all the wars of the nineteenth century is estimated at 14,000,000 [1] and that of consumption in the same period and countries at 30,000,000. Germany, which seems to have the most comprehensive and reliable mortuary statistics, in reports for 1894 (which in all essentials apply to all civilization), shows that 116,705 persons perished that year in that country from the results of the following infectious diseases: diphtheria, croup, scarlet fever, whooping cough, measles and typhoid fever, and that consumption *alone* killed 123,904, *i. e.*, 7,199 persons more than the six other scourges together!

Besides this disheartening destruction, consumption is a formidable world-wide problem from the view point of economics, for it affects not only the young who are unproductive, but 75% of its victims are among self-supporters, bread-winners of families and the helps of the nations — men and women from the age of fifteen to seventy.

Our country's yearly death-rate from it is approximated at 160,000. It invalidates, on the average, each victim at least one year. My experience inclines to two, during which each subject is unable to work or produce. Of these invalids perhaps one fifth are not wage earners and have incomes continuing while sick. The remaining four fifths lose their previous daily revenue. If we estimate that all of the latter are too ill to earn anything for one year, and that each of them was previously earning one dollar a day three hundred days a year, what does it represent in yearly loss? Thirty-eight million, four hundred thousand dollars. If the average length of invalidism is two years it means a loss of $76,800,000 a year. These are flat losses of income. Other losses in the form of expenses for medicines, physicians, nurses, traveling, dietetics, funerals, etc., would aggregate as much perhaps, but they merely change hands and therefore benefit somebody.

Yet we live in the midst of this frightful devastation with equanimity, we witness the daily horrors and the cruel sufferings it engenders all about us with calm unconcern. If smallpox arises, we take to the woods; if scarlet fever, we barricade our families; if diphtheria, we almost abolish the breathing of our children for fear they might inhale its germs, but we allow with indifference the seed of consumption to be sown in our homes, in our schools, in our stores, in our churches, in our playhouses, in our public buildings, in our public conveyances, on our sidewalks, everywhere, and we breathe infected air with stoic indifference; we eat from infected dishes without a thought of danger; we view the

[1] Richet.

whole appalling situation with the callousness of the fatalist.

Why is the world so strangely apathetic with regard to this, the very gravest and most comprehensively destructive of all the ills of mankind? First, because the majority of the medical profession continues to consider tuberculosis, particularly pulmonary consumption, as incurable in any event. Second, because this circumstance and the lack of instruction in sanitary science in our system of education has produced a public mental attitude of wanton optimism. Third, because there remain here and there a few who reject facts of infection mathematically demonstrated the world over and continue a public crusade in favor of their mistaken ideas. Fourth, because when tuberculosis is recognized the truth is often concealed so long from the patient and relatives that the former loses precious chances of recovery and is allowed to disseminate the disease broadcast. Fifth, because, by marriage of consumptives, prolific new centers of infection with far-reaching fatal influences reinforce the popular idea of unavoidable pathogenic perpetuity. Sixth, because the diagnosis of the disease, in the great majority of cases, is made too late for any measure of prevention or cure to be effective.

The last of these causes is of the greatest moment of all, perhaps, for, if it were eliminated, the others mentioned would in a measure naturally disappear and the balance be removed by degrees. When the profession at large, in every country cross roads and in more popular centers, becomes in a position to diagnose tuberculosis prior to appreciable reduction of the defensive vital forces in man, probably 80% of tubercular patients will be afforded treatment opportunities in time for salvation. Then its members will realize that this disease is not necessarily fatal, that it is controllable, and therefore the public should be instructed in the laws of prevention. The doctor will no longer shrink, or fear (from an excessive sense of ethics, perhaps) from appearing before a lay audience to teach how to avoid consumption, or to instruct the teachers if not the little ones in our schools on the principles of practical hygiene. Then, with the strength of his conviction and his experience, he will go to the lawgivers, or be one himself, and have weight in pleading for legal enactments looking to the immediate control and eventual effacement of the plague from the face of the earth.

It is evident, if what precedes is true, that the concern of the public and the profession in tuberculosis should be greater than it seems to be. And, as physicians, with daily opportunities for observation, with continual chances to give proper advice, we owe it to ourselves and the people to earnestly endeavor to arrive at that acute sense of perception, available to most practitioners, which makes for good diagnoses early, without the presence of classical symptoms, or at least without having before our eyes symptoms that can be read at ten paces. Of course, this demands close application, diverse clinical opportunities and aptitude, but all of these conditions are in a measure at the command of most doctors in their own practice, where, after all, they can, under present circumstances, find the best lessons. The medical schools do not as yet afford a satisfactory kind of education to train one in the very early diagnosis of consumption, nor of any constitutional malady for that matter.[2]

Judging from superficial appearances and the prevalent notions of the day, one is not inclined to credit the assertion of high authorities that almost everybody is tainted with tuberculosis, yet there are extant numerous reliable data to support it. Professor Naegeli of Zurich, for instance, in special researches on cadavers brought to the grave by causes other than tuberculosis, failed to find a single one above thirty years free from scars of this malady. In such cases the lesions consisted chiefly of fibro-cretaceous transformations (nature's process of healing tuberculous points). Mainly the glands in the lungs and the ganglia of the mediastinum were involved; occasionally, too, the kidneys, the liver and even the brain.[3] The same author demonstrated, also by autopsies, the general existence of tuberculous lesions in 96% of bodies eighteen to thirty years of age; 50% in those fourteen to eighteen; 38% in children five to fourteen, and 17% in children one to five.

Now these data, which are supported by others equally reliable in various countries and which are not foreign to the experience of many of us with dissecting material, not only show the extent of the disease, but indicate clearly its curability at different stages. Blumer and Lartigau, in giving their results of five hundred consecutive post-mortem examinations, show that healed pulmonary tuberculosis occurs in 4% to 100%.

We should certainly take the gist of these reports as proof that tuberculosis is not always as rebellious as we think and as the public believes. If nature unaided can cure so many cases, could she not cure more if we assisted her in her own line of action in fighting the infection? Could we not add much to her activity by even the mere application of proper hygienic measures if we knew the existence of the affection at its very incipiency? Could not then the physiologic agencies coming under the head of nature's defensive powers, as the vaccinating toxins, the serums and other products of the kind, have a more generally happy effect than in the advanced cases, in which we not infrequently succeed in spite of the fact that we generally have to combat the armies of a dozen different poison-form-

[2] The medical college that will establish a competent chair to teach the pathology and clinical factors of the borderland of disease will confer a blessing on the profession and humanity for it will do immediate good and soon be emulated. This sphere of medical science, including physiologic conditions as they taper down and change to pathologic states, and which have been explored only by few, contains the very germ of knowledge for the early diagnosis of all diseases affecting the constitution, and could be treated in a most interesting manner without in any way interfering, but rather supporting or supplementing the regular course on the principles and practice of medicine. A dozen or two of good, practical lectures would be of immense advantage to students and physicians alike.

[3] Hericourt: The Frontiers of Disease.

ing microbes? Would not climatology and all of the usual applicable treatments be more commonly useful?

These are questions worthy of most serious consideration and investigation, questions which abroad are receiving more attention and by those engaged publicly and amidst the people in their solution receive less discouraging criticisms than here.

Modern science teaches that infectious and constitutional diseases are the result of poisoning and its consequences by toxic products generated in the system: (*a*) by the toxins of micro-organisms in the tissues or blood, (*b*) by products of microbes, *ptomaines*, evolved from the food ingested and hence in the alimentary canal, (*c*) from nocive substances, *leucomaines*, formed by the cells constituting the structure of the body itself, when they fail to be properly eliminated. Indeed, after thorough consideration of morbid entities and the study of pathogenic substances found under various conditions in cellular products, we can scarcely escape the conclusion that all such maladies are primarily the result of irregularities in the metabolism of cellular nutrition which is thereby "either retarded, or accelerated, or perverted." Consequently, judging from these premises, we may say with Hericourt that infectious and constitutional deviations from the physiologic line are in the end disorders of nutrition.

But why should the cells maintain their equilibrium of metabolism to-day and fail to-morrow? This question brings to the mind the controlling and guiding force of the organization, to wit, the nervous system. It is this system which presides over the functions of nutrition, the production of heat, the repair of damages, the generation of new cells, the glandular secretions, the elimination of waste matters and poisons, the various defensive faculties of the body existing in the serum, the phagocytes and their alexins, etc. Composed of the most sensitive and intelligent cells of the marvelous aggregation which in their union constitute the human structure and form, it suffers first and most, and becomes weakened if not incompetentby the effects introdud into its midst. It matters not whence came these poisons, whether from alcohol or drugs, the fermentation or decomposition of food or beverages, the growth of microbes or cell life phenomena in the structure, the nerve elements are banefully influenced.

Then the organs which the nerve forces direct and command fail more or less in their duties. It is reasonable to say, therefore, that, after all, diseases due to toxic products occur because the nervous system becomes incompetent to maintain proper nutrition and elimination. And it should be borne in mind that very naturally this insufficiency may vary greatly in degree, and that therefore innumerable shades of intensity in a given infection will result.

Tuberculosis is no exception. We must proceed, then, in the study of its borderland and the disease when developed with the understanding that there is no straight or clear cut line of demarcation between health and disease; that instead there is a tapering margin between the former and the latter,often with so slight a decline, indeed, as to give absolutely no warning whatever that health is slowly sliding into the realm of ill health; and that inefficiency of nerve power is largely responsible.

We hear much of pretubercular states nowadays. They are defined as systemic conditions favorable for the growth of tubercular germs, fertile soils, in other words, and we are asked as physicians to prevent tuberculosis by altering them. These states are the beginning of the borderland of tuberculosis, when the germ is grafted. The borderland is the vague state of undeveloped infection. Its boundaries are laid when the seeds are sown. After the appearance of any of the characteristic symptoms of the disease we are in the domain of consumption. Did the nervous system continue always to control and direct all the organs of the body so that each would unceasingly fulfill its particular duties and all as a community perform their coöperative functions, tubercular infection could not cross the frontier; but when that system fails to enforce the elaboration of proper digestive juices, thus starving the tissues and permitting intra-intestinal fermentation with toxic products; when it does not afford provision for the army of microscopic defenders, the phagocytes; when it is unable to keep the standard of its natural antitoxins; when complete cell nutrition and metabolism fail, in a word, then the bacillus of Koch and its collaborators, which are ever with us, begin to overcome the vitality of the tissues. The invasion gets a foothold. And if this system continues incompetent, or becomes more so, physiology steadily becomes pathology; very soon symptoms of developed tuberculosis attract the observer. These are usually not the first signs existing; a searching diagnostician might find tubercular glands much earlier, but they are in ordinary practice the first to be discovered, the first unquestionable external manifestations.

What are then the symptoms of the borderland of tuberculosis? To be more intelligible I should picture you a variety of tubercular indications of different types, but I have not the time at my disposal. Briefly, they are comprised in the following: In children there may be habitual headaches, nose bleed, early and excessive brightness of intellect; tonsilitis, occasional irregular unaccountable fever, adenites in various localities, lassitude without undue exertion, seeming indifference to duties when at heart desirous of performing them, over-activity of hair growth. At all ages chronic stomachal and intestinal dyspepsias, occasional flushing of the face, unaccountable afternoon fevers, unaccountable subnormal temperature (more common in the morning), pleurisy (almost always surely tubercular), occasional aching in one or more identical spots in the chest, or back under the shoulder blades,

by hypertrophied tonsils, adenoid and lymphoid growths of the throat, hacking coughs with or without expectoration, grayish, glairy sputum even when in small specks, spitting of blood even in minute quantities, habitual scraping of the throat, chronic respiratory catarrh, sweats without natural causes (night or day, general or localized), habitually fast pulse (85 to 120 in adults), clammy or sweating hands and feet, susceptibility to colds under slight provocation, certain abnormal chest conformations, etc. Any of these symptoms suggest the necessity of a thorough examination and long observations, if need be, to discover better-known signs of existing lesions. They suggest the use of the tuberculin test and Courmont's sero-reaction (agglutination) method of early diagnosis.

I have mentioned tonsilitis as an early sign of tubercular infection. This brings up the question of germ entrance into the system and subsequent infections in various organs. It is an important question, having the greatest bearing on the problem of early diagnosis, for if we realize the actual manner and point of original invasion we may apply preventives there and trace the route of the microbic invaders, at least in a measure.

There was a time when tubercle bacilli were supposed to reach the lungs only by direct inhalation; the abdominal organs by ingestion, and other localities by undefined channels. Now we know that, while this idea is not categorically contested, the tonsils are, perhaps, the chief gateways. Meyer of Copenhagen and Dieulafoy have demonstrated by experimentation and observation that tonsilar hypertrophies are often of tubercular origins as are probably the lymphoid tissues of the pharynx and naso-pharynx. The ordinary lesions of tubercular throat are not present, the disease is latent. Thence, if the germs succeed in their efforts, they cross their barriers and finally reach the glands of the lungs by the lymphatics. By means of the circulation currents, comparatively rare, they may reach the brain and other organs.

And if we admit this conception of the chief mode of bacillar ingress as correct, we appreciate at once how simple are therapeutic and hygienic measures capable of disinfection and prevention.

When one presents regrettable conditions he is generally tempted to offer a remedy. In submitting to this learned association that the civilized world is so sadly apathetic to the eternal tragedy of tuberculosis and that the profession is not wholly free from responsibility for the situation, I find myself wishing for some reform, but unable to map out any plan. However, perhaps you will indulge me a suggestion which some of those more directly interested, particularly medical teachers, may find worth considering at leisure.

It appears to me that a vigorous campaign of education on general hygiene, and the hygiene of tuberculosis in particular, is necessary and demanded; that it should include two distinct branches, — one for the education of the public, the other for the further instruction of the profession.

The first might be attempted by concerted efforts, a well-arranged system under the national medical association and all its subordinate bodies and the boards of health, to reach the people through the schools and public lectures.

The second by means of additional teaching in the medical schools, elaborating the physiology at the points where it dwindles down into pathology; in other words, teach thoroughly the nature of the borderland of disease, chiefly of tuberculosis, including the advanced methods of early diagnosis.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D., BOSTON.

THE WINDOW RESECTION OPERATION FOR CORRECTION OF DEFLECTIONS OF THE NASAL SEPTUM.

IT is noteworthy that the advance of septal surgery, which has of recent years called forth various ingenious devices and methods of operating, should be tending towards perfection of one of the oldest methods, that of dissecting out the deviating cartilage. This has been made possible by the aid of cocaine and adrenalin, and by improvements in instruments and technic. The old operation of Krieg, modified in 1899 by Bönninghaus, and the work of Hartman, Peterson, Killian and many others, has in the past few years resulted in developing a multitude of details and many instruments, and also incidentally not a little discussion on rights of priority.

In this country, Freer[1] has contributed the results of a large experience in the sub-mucous operation. The patient is seated in a chair, or, if more convenient, lies in a recumbent position. For local anesthesia, powdered cocaine is applied to both sides of the deflection with a small damp swab. In most cases adrenalin makes the field of operation bloodless or nearly so, but often fails to act. Applied to bleeding wounds it is not as good a hemostatic as a fresh application of cocaine.

Before the operation the vibrissæ are cut away and the nasal vestibule is cleaned. In deviations far forward, the ordinary nasal specula cannot be used, and instead an assistant lifts the rim of the nostril with a flat retractor. The first incision cuts through the mucosa only, along the angle of the cartilaginous deflection, which is usually vertical in direction. This incision is joined by a horizontal one beginning about three fourths of an inch behind it and carried along the bottom of the septum forward to beyond the

[1] Journal American Med. Association, March 8, 1902, and Dec. 5, 1903.

beginning of the deflection, the incisions forming an inverted T. It is important to outline an anterior flap large enough to completely uncover the cartilage of the deviation in front and above, and to be caught with and held out of the way by the retractor, or by light catch forceps. The separation should be carried under the mucosa as far back as the deflection reaches, behind the limit of the posterior flap. This detaches the mucosa completely from the convex side of the deflection. A vertical slit is made through the cartilage in front of the beginning of the deflection underneath the anterior flap, along its anterior attachment. This cut must not pierce the mucous membrane in the opposite nostril. The dental spatula is now pushed through the slit and under the cartilage, between it and the opposite mucosa, which it detaches over the entire extent of the hollow of the deflection by severing its adherence submucously. The instrument may be watched from the naris of the concavity as it moves beneath the mucous membrane. When the deflection is bare of covering on both sides, Ingals' pointed cartilage knife is inserted in the slit under the cartilage, passed to the back of the hollow of the deflection and with its point turned outward from the mucosa made to cut through the entire length of the cartilaginous deflection along its base. The deviated cartilage is now free at the bottom and in front, and to cut it away at the back and above it is firmly held with rat-toothed forceps, while a little sharp-pointed angular cartilage knife is passed under the cartilage to the bottom of the pocket formed by the hollow of the deflection and its separated mucosa, its point also turned outward, away from the mucosa of the concavity, and the blade made to cut through the hindmost part of the cartilaginous deviation from above downward. A second angular knife is passed in the same way and made to cut through the limit of the deviation above from behind forward. When the bone is not too heavy it may be cut away piece by piece with large Gruenwald forceps which follow it up between the two layers of the mucous membrane. Remaining deviated portions are cut away with the angular knives or the punch forceps and the base of the deviation, which usually projects upward and outward as a thick, partly bony, ledge, must be chiseled, gouged or trephined away or cut away with the punch forceps. The flaps may then be replaced, smoothed down with a damp cotton swab, and the nostril packed with a strip of lint one fourth to five eighths of an inch wide, rubbed full of subnitrate of bismuth. It is not safe to dismiss a patient unless the operated nostril be evenly packed with lint, as bleeding may occur within an hour or two when the effect of the cocaine and adrenalin is gone. In extensive resections it is sometimes well to support the bulging mucosa by a tampon in the other nostril. For a week to six weeks after the operation the naris operated on is more or less obstructed by swelling. When bone needs removal the operation is long, from one to two hours.

LEPROSY OF THE NOSE.

The recent advent of a few lepers in this vicinity and the agitation for the formation of a leper colony gives interest to the local appearances of the disease in the nose and to the sources of contagion.

Dorendorf [2] from a study of the disease in the Canary Islands agrees in most respects with the results of Sticker, as published in the records of the International Leprosy Congress in 1897. The primary appearance of leprosy is a specific lesion of the nasal mucous membrane, generally in the form of an ulcer of the cartilaginous septum. This lesion, which may increase to a necrosis of the nasal structures, is present in the latent forms of the disease and may exist for years before the first tubercle of the skin or the first symptom in the nervous system shows itself. This primary lesion remains as a source of active infection during the whole course of the disease, and all treatment of the disease must include attention to this process. Also this primary lesion and its vicinity throws off bacilli of leprosy regularly and in enormous numbers. The spread of the disease from the leper to the healthy person goes from nose to nose; most frequently by direct contact, especially between members of the same family, to a less extent by towels, dirty hands and similar ways. The spread of leprosy from the nasal lesion to other parts of the body is principally through the lymphatics, although occasionally it may spread like milary tuberculosis through the blood current.

THE DEVELOPMENT OF THE NOSE AND ITS ACCESSORY CAVITIES.

The development of the nose as traced through the anatomy of the lower animals is the subject of a preliminary paper by Ingersoll.[3]

The olfactory organ in fishes consists of two sac-like structures, each of which communicates with the exterior by two openings, but the nasal cavities do not communicate with the mouth. The turbinals are represented by prominences on the median wall. In dipnoi the nasal cavities open into the mouth and the nose then becomes a part of the respiratory system. In reptiles the nasal cavities are subdivided into olfactory and respiratory regions, and the turbinal structures are more highly developed. The secondary plate separates the posterior nares from the mouth and the nasal fossæ are thus prolonged and open farther back into the naso-pharynx. In birds, the turbinal structures are more complicated, and the ethmoidal turbinals especially show a still higher degree of development. In macrosmatic mammals (animals which have an acute sense of smell), the turbinal structures are exceedingly complicated scrolls forming intricate labyrinths which occupy the greater part of the nasal cavities. The accessory cavities of the nose all contain olfactory turbinals and are in intimate relation with these structures. For instance, the dog's

[2] Fraenkels Archiv, Band xvi, Heft 1.
[3] Annals of Otol., Rhin. & Lar., June, 1904.

nose is a very complicated structure; the ethmoidal turbinal consists of a mass of thin, delicate scrolls of which at least five radiate from the convex surface of the cribiform plate. It articulates with and is supported by the sphenoidal, frontal, nasal and superior maxillary bones, and some of its numerous branches extend into all the accessory cavities of the nose. One scroll extends forward over the maxillary turbinal, and anteriorly it is supported by a process which is attached to the external lateral wall of the maxillary sinus. The maxillary sinus is hollowed out of the superior maxillary bone and is only partially separated from the nasal fossa by the ethmoid bone. The ostium maxillare is large and extends downward to the floor of the cavity, opening into the nasal fossa in the inferior meatus just posterior to the maxillary turbinal. The hiatus semilunaris is a groove formed in one of the processes of the ethmoidal turbinal and leads directly from the frontal and ethmoidal cells into the maxillary sinus and thence into the inferior meatus. The frontal sinus is situated between the two plates of the frontal bone, and its anterior inferior part is occupied by a double coil of the ethmoidal turbinal which is attached to the external wall of the sinus. The sphenoidal sinuses are separated from each other by a rather thick septum in the median line and are nearly filled by scrolls of the ethmoidal turbinal. The posterior part of the vomer is expanded into lateral wings which unite with the ethmoidal and thus divide the posterior part of each nasal fossa into two superimposed cavities. The superior cavity contains most of the ethmoidal turbinal and is distinctly an olfactory chamber. The inferior cavity is simply a tube-like structure forming a direct communication between the anterior half of the nasal fossa and the naso-pharynx. The function of the accessory cavities of the nose in the dog seems to be to provide space for the tremendous development of the olfactory turbinals, and to conduct air over the external surface of these structures and to furnish a system of drainage for them.

In microsmatic mammals (animals which do not have an acute sense of smell), the turbinals all show evidences of degeneration or reversion, and are comparatively simple structures. The accessory cavities contain little or no turbinal tissue and their functional activity is lost. The nasal cavities of man show evidence of being of retrograde development. A third ethmoidal turbinal, and more rarely a fourth one, may be present. These structures are evidently rudiments of the more extensive development of the ethmoidal turbinal in lower forms. The maxillary sinus is sometimes partially divided into an anterior and posterior chamber by a bony partition, which are probably rudiments of the ethmoidal turbinal which, in the dog, extends down into the maxillary sinus. It seems probable, therefore, that in man the accessory cavities of the nose are rudimentary structures.

EXPLORATION OF THE ANTRUM UNDER COCAINE.

In order to explore the maxillary antrum thoroughly, Kelly [4] has recently adopted the plan of opening through the canine fossa under cocaine anesthesia. He uses trocars and trephines in preference to chisels, as the edges of bone are smoother when so made. He has so far limited this method to diagnosis and simple treatment, and for radical operation uses a general anesthetic. In commenting upon this paper Douglass [5] reports that he has been in the habit for the past two years of studying suspected cases of antral disease by exploration through the canine fossa under local anesthesia, and supplementing the exploration by radical operation when the conditions demand it. So satisfactory has this plan proved that operation on the frontal sinus is now also included, and he is almost willing to regard the necessity of a general anesthetic in operations on the nasal interior or its accessory sinuses as a thing of the past.

PARAFFIN FOR CORRECTION OF DEFORMITIES.

The injection of paraffin for cosmetic purposes, and especially for restoring the bridge of the nose, has become a practical operation largely through the work of Harmon Smith, described two years ago. Although offering nothing new, a paper by Ritchie [6] reviews the subject clearly and concisely. Since the advent of the screw-piston syringe, the possibility of danger is reduced to a minimum. The screw force makes possible the use of cold, semi-solid or quite solid material. The piston is so graduated, that each turn of the handle eliminates three minims of paraffin. This instrument gives the operator absolute control over the quantity injected and does away with the necessity of using heated material, with resultant embolus. No accident, beyond hyper-injection or misplacement, has followed the use of solid or semi-solid paraffin, when venous compression has been made. To avoid hyper-injection, conservatism in the attempt at correction of a deformity is advised. About twenty minims is required to correct the average deformity. Misplacement is usually the result of injecting immediately beneath, or under the skin, rather than upon the periosteum. When the injection is placed immediately over the periosteum, the correction is more permanent, not subject to displacement and is less inclined to produce inflammatory reaction. The error of misplacement will also follow the introduction of too much material before molding. The skin having been made absolutely clean a few drops of a 2% solution of cocaine may be injected into the epithelial layer only. The paraffin has a melting-point of 110° F., not being pure parraffin, but a combination of common paraffin with a melting point of 120° F., and petroleum jelly. The syringe having been thoroughly boiled is placed in warm sterile water. The paraffin is also subjected to a boiling temperature and poured into the syringe

[4] Lancet, Sept. 17, 1904.
[5] Post-Graduate, Dec., 1904.
[6] Laryngoscope, August, 1904.

before inserting the piston. The screw on the shaft of the piston is now run into place, the pressure causing all the air to be displaced. The syringe containing the paraffin is placed in a vessel containing cold sterile water, so that the paraffin will recover its original solid consistency throughout. The paraffin needle is warmed to facilitate the expulsion of the paraffin. Each turn of the piston expels three minims which should come forth in a steady, white thread. Should the paraffin be ejected in spurts or disorganized granules, ejection should be continued until the steady vermicelli-like thread appears. An assistant makes pressure over the internal canthi, the needle is passed through the soft tissue to the periosteum beyond the point of deformity; three minims are inserted at a time The needle is gradually withdrawn, the molding going on all the while. Care should be exercised to see that no paraffin adheres to the point of the needle as it is withdrawn. Should there be irregularities or slight misplacements, these should be corrected by forcible molding before proceeding further. The point of entrance of the needle is sealed with collodion and a bit of cotton, and the patient is instructed to apply ice cloths to the dorsum of the nose for a period of at least six hours. Ten days are allowed to elapse ordinarily before a second sitting, should that be necessary. It seems justifiable to compare the injected material to so much fatty tissue, being frequently permeated and enveloped by minute trabeculæ.

When cold, sterile, semi-solid paraffin, free from water of evaporation, and air, is injected into surgically clean tissue, the danger of embolus is avoided.

PARAFFIN IN OZENA.

Guarnaccia[7] uses a paraffin with a melting point of 45° C. for injection into the turbinates in cases of atropic rhinitis. As cocaine contracts the blood vessels it is not used, but the process is not a painful one. Between two injections there should be an interval of at least a week. In cases in which there is a doubt whether the atrophy is too far advanced to expect anything from this method of treatment the turbinate is touched with adrenalin; if there is any contraction from the adrenalin the injection of paraffin offers a chance for improvement; if there is no contraction little or nothing can be expected. The author has treated a large number of cases with no unpleasant results, except in two a slight infra-orbital swelling which disappeared in two days.

CHOLESTEATOMATOUS DISEASE OF THE TONSILS.

A short article under this title by Pierce[8] presents a few interesting points of view. Beginning with the anatomy of the supra-tonsillar fossa, he describes a membrane which he calls the plica triangularis superior. As the base of the plica inferior is attached to the anterior pillar, the base of the plica superior is attached to the posterior pillar and runs forward to be lost in the anterior pillar. Farther outward is to be found a cavity which lies between the tonsillar substance and the tonsillar fascia. This cavity is fairly constant in its occurrence. It is not an enlarged lacuna, but is an anatomical space surrounded by epithelium derived from the mucous membrane of the supratonsillar space and extends downward to a line drawn at the base of the tonsil or farther downward approaching the sinus pyriformis, where it ends in a blind extremity. Passing to the pathology of the supratonsillar fossa, two conditions are important, — metaplasia of the epithelium and peritonsillar abscess. Metaplasia of the epithelium within the crypts of the tonsils may occur at any portion, but is not infrequent in the depths of the appendix of the supratonsillar space. Whitish, foul-smelling, waxy masses are the result of metaplastic process, often erroneously regarded as decomposed food. This process is not confined to the crypts, but may occur from the epithelium of the supratonsillar walls themselves. Macroscopically and microscopically the plugs from the tonsils, or supratonsillar space, are indistinguishable from cholesteatoma of the ear, except that the masses in the tonsil have no limiting membrane; in fact they are produced by the same causes, exfoliation of epithelium, fatty degeneration, and finally decomposition of the mass.

In order to destroy the sinus the author inserts one blade of scissors into the sinus and divides it. An adhesive process between the plica triangulasis superior and the upper surface of the tonsil may change the supratonsillar fossa into a more or less closed cavity. Peritonsillar abscesses are best reached through the supratonsillar fossa by separating the adhesions between the upper walls of the supratonsillar space and tonsil. After the subsidence of the acute symptoms of peritonsillar abscess, it becomes imperative to remove sufficient of the upper pole of the tonsil to allow the supratonsillar space to drain permanently. The author exhibits some ingenious instruments for dealing with the tonsils.

THE DIRECT EXAMINATION OF THE TRACHEA, BRONCHI AND ESOPHAGUS.

At a recent meeting of the Belgian Laryngological Society, Killian demonstrated the practical application of his tubes for exploring the trachea and esophagus.[9]

The tubes are of different lengths and caliber. Reflected light is used; the patient may be either in a sitting or dorsal position. With the aid of a proper tongue spatula the larynx is brought into view and the tube introduced under control of the eye. A general anesthetic may not be necessary. In this way the larynx, trachea, upper bronchi and esophagus may be explored. In July, 1902, twenty cases had been reported in which foreign bodies had been removed from the bronchi with the aid of bronchoscopy, and it

[7] Centralblatt für Lar., September, 1904.
[8] Laryngoscope, May, 1904.
[9] Centralblatt für Lar. etc., August, 1904.

is for this purpose that the method is especially suited; it may, however, be useful for diagnosis and treatment of local diseases, for the removal of papilloma in children or of other growths, as well as for removal of foreign bodies. As a proof of the practical value of the method the author showed a large collection of foreign bodies removed from the larynx, trachea, bronchi and esophagus. The whole subject of direct examination of these passages is exhaustively treated in a monograph by von Eicken,[10] Killian's assistant in Freiburg.

THE TREATMENT OF LARYNGEAL TUBERCULOSIS.

A paper read by Solly,[11] while presenting little that is new, is valuable as the result of experience of tuberculosis in Colorado, especially in view of the good results which he reports. The local treatment of laryngeal tuberculosis to be successful demands special skill, experience, courage and patience on the part of the physician, and faith and fortitude on that of the patient. The first essential of treatment is to place the patient under the best hygienic conditions. The superficial surfaces should be put in good condition by cleansing and disinfecting sprays or applications, and, when ulcers are present, by direct treatment of them so as to surgically remove diseased tissue and to penetrate beyond its area with cauterizing acids. As much rest as possible should be given by abstention from talking, and as much nourishing food as can be digested, given in forms which in swallowing cause the least possible amount of pain. Cleansing is of first importance, by the use of watery solutions, of which Dobell's is the type. Inhalations are often of service, warm when there is much irritability, but usually cold are best, especially the compound tincture of benzoin one part, glycerine one part, and alcohol one and one-half parts. In cases of tubercular infiltration of the larynx without ulceration, the best treatment is by submucous injections of about twenty minims of a 15% watery solution of lactic acid, preceded by an injection of cocaine and adrenalin. It does not have to be repeated often.

An ulcer discovered, or even suspected, should first be rubbed with a 10% solution of cocaine, and then with lactic acid full strength. This does not hurt any more at the time than when the acid is diluted, and is more efficacious, because it cauterizes the ulcer and leaves it protected. If it also touches sound tissue it does no harm. The best procedure when curetting is determined upon, is to first rub in lactic acid of full strength freely, and then about three days later to curette. Orthoform when used sufficiently to deaden pain has a disintegrating effect upon the tissues and increases the ulceration. Generally the patient gets more satisfaction from his own use of Dobell's solution as a spray than from cocaine or any other sedative. The author rarely uses the double curette, and does not believe it is possible, or indeed advisable, to remove all the tuberculous material. Going beyond the base of the ulcer there is danger of infecting new tissue, and mere removal of the tuberculous material does nothing to prevent more being conveyed from the lungs.

THE CONNECTION BETWEEN DISEASES OF THE EYE AND OF THE NOSE.

The nasal origin of many ophthalmic disturbances has recently become universally admitted, although often the relationship between the two is obscure. An excellent paper by Schmiegelow[12] on this subject is worthy of careful study. The author concludes that although nasal lesions may find their way directly into the orbit, as in the case of tumors invading the eye or by pressure causing disturbance of function, yet the most common process is a spreading of inflammation along the vessels and nerves from the nasal and accessory into the orbital cavities. Individual anatomical peculiarities have a great influence in aiding or retarding this passing of inflammation from one structure to another. An acute purulent infection of an accessory cavity, especially with retained secretion, may involve the orbit along the courses of the lymphatics, veins or nerves. The optic nerve is in close relations with the sphenoidal sinus, and may be involved by an inflammation, and especially by an empyema of this cavity. Ziem believes that a circulatory disturbance in the nasal cavity may cause a circulatory disturbance in the orbital through the direct relationship of the venous, and less direct of the lymphatic systems in the two cavities, and that this is the cause of many troubles in the eye. Many cases of conjunctivitis and stenosis of the nasal duct are cured by relief of nasal obstruction, and often the removal of adenoid vegetations produces marked improvement in the eye. This may be explained by the relief of stasis in the orbital vessels. On the other hand, a nasal obstruction is not always the cause of the trouble.

Many patients have more or less complete stoppage of the nose without any trace of disturbance in the eye. Therefore it is perhaps more accurate to say that nasal stenosis predisposes to disease of the eye through stasis of the orbital circulation, but it must not be assumed that the nasal origin is in all cases certain. Kuhnt has suggested that many diseases of the eye are due to the poisoning by a toxin which is set free in the accessory cavities, but this is hard to believe when there is no symptom of toxin poisoning anywhere else. There is no doubt that there may be reflex disturbance of the eye from the nose, and that this is a common cause of trouble. It is often very difficult to decide whether the nose is the cause of the trouble in the eye. It must not be assumed that because there is a purulent inflammation of the conjunctiva, and also one of the nose at the same time, that the latter has caused the former. They may both have been due to a common infection. In all

[10] Archiv. für Laryngol., Bd. xv, Heft 3.
[11] Laryngoscope, June, 1904.
[12] Archiv für Laryngol. Bd. xv, Heft 2.

cases of deep-seated disease of the eye, the nose should be thoroughly examined, and wherever nasal disease exists it should be, as far as possible, removed.

Reports of Societies.

AMERICAN PUBLIC HEALTH ASSOCIATION.

(Concluded from No. 4, p. 114).

PRESIDENT'S ADDRESS.

The President, Dr. Carlos J. Finlay, after thanking the association for the great honor that had been conferred upon him in electing him president, referred to the first Havana yellow fever commission, which was established a quarter of a century ago, and came from Washington to prepare the ground upon which a common enemy would be subsequently challenged and decisive battles fought. This enemy was yellow fever. So well did this commission accomplish its object, that he could readily trace back to its immediate influence the discoveries which led the way to ultimate success.

After referring to the deaths of several prominent members that had occurred during the year, he stated that the sanitary experience in Cuba during the last twelve months, both with regard to yellow fever and to smallpox, had been somewhat more eventful and at the same time more instructive than in the preceding two years. In the district of Havana, notwithstanding the admission of imported cases of yellow fever from foreign ports, not a single case, originating on the island, had been recorded. With the experimental proofs that they now possess that fomites *per se* were incapable of transmitting the disease, the inevitable conclusion must be that in the cases he mentioned infected mosquitoes had been conveyed upon floating bodies by the ebb-tide.

The fight against tuberculosis must be maintained at all costs, as the most important factor in mortality statistics of large towns, almost all over the world.

The study of causes and prevention of infant mortality was one which affected Cuba not only with reference to infantile enteritis, but also with regard to tetanus neonatorum, the occurrence of which was coupled with unpardonable ignorance or neglect, both on the part of parents and of the attendants at the birth of children.

The control of milk supplies in large cities was closely connected with infantile mortality, for the methods best calculated to carry the former into effect should undoubtedly lessen the latter.

Finally, the subject of sanitary agreement between adjoining nations had become of paramount importance since the recent advance made in our knowledge of the etiology of certain quarantinable diseases, of yellow fever in particular. Hence the advisability, that European nations holding possessions in the American yellow fever zone, be represented at the meetings of the association.

Dr. Benjamin Lee of Philadelphia read a tribute to Dr. Carlos J. Finlay for his distinguished services to science and humanity in the discovery of the mode of propagation of yellow fever.

BACILLUS TUBERCULOSIS IN MAN AND ANIMALS.

In the absence of Dr. M. P. Ravenel, Chairman of this committee, the report was read by Dr. V. C. Moore.

Since the last meeting, several important pieces of work had been reported. These were detailed in the report. The committee carefully compared the disease set up in the bovine animal by material of bovine origin, and so far it had found the one, both in its broad general features and in its wider histological details, to be identical with the other. It had so far failed to discover any character by which it could distingulsh one from the other; and its records contained accounts of the post-mortem examinations of bovine animals infected with tuberculous material of human origin which might be used as typical descriptions of ordinary bovine tuberculosis.

At the laboratory of the State Live Stock Sanitary Board of Pennsylvania, a third instance of infection with the bovine bacillus had been found. The case was that of a child not quite two years old, who had been nourished the greater part of its short life on cow's milk, bought from the most convenient store. It developed a large abdominal tumor, which proved on autopsy to be a tuberculous new growth, involving the mesenteric glands and intestine. The lungs were not involved. Cultures were obtained from this tumor, which had the cultural and microscopic characteristics of the bovine bacillus, and proved fatal to a calf weighing 211 pounds, in thirty-five days.

The committee did not yet feel able to say with what frequency bovine infection of man took place, but it was evidently not a rare occurrence. The committee considered that the evidence going to show that such infection did take place was absolutely conclusive, and that it not only justified, but made imperative, the passage of stringent laws by municipal and state authorities for the suppression of tuberculosis in cattle, and the prohibition of the sale of meat and milk from tuberculous animals.

Dr. Jesus E. Monjaras of Mexico City contributed a paper entitled, "Measures proposed in the Struggle Against Tuberculosis."

The Secretary read the report of the Committee on Tuberculosis, in the absence of its chairman, Dr. Lawrence F. Flick of Philadelphia.

REPORT OF THE COMMITTEE ON TUBERCULOSIS.

The practical measures recommended years ago had since been tested in part, and so far as tested had been found of use. These recommendations were:

"1. The notification to and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.

"2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.

"3. The establishment of special hospitals for the treatment of tuberculosis.

"4. The organization of societies for the prevention of tuberculosis.

"5. Government inspection of dairies and slaughter houses and the extermination of tuberculosis among dairy cattle.

"6. Appropriate legislation against spitting into places where the sputum is likely to infect others and against the sale or donation of objects which have been in use by consumptives, unless they have been thoroughly disinfected.

"7. Compulsory disinfection of hotel rooms, sleeping car berths and steamer cabins, which have been occupied by consumptives before other persons are allowed to occupy them."

In addition to the specific recommendations here given, the committee urged upon the public the importance of better housing of the poor in their places

of abode and in their places of occupation; better control of the food supply at large, and more definite instructions in the schools and on the platform of diet for the working people. The home and workshop were really the centers from which the disease was distributed, and they at the same time were strong predisposing causes of the disease by reason of their unhealthiness. Bad and adulterated food and improper selection of food by the individual were also strong predisposing causes by lowering vitality. The committee suggested that every member act as a committee of one in his own home to help organize a campaign against this disease.

DR. WALTER D. GREENE of Buffalo, N. Y., said that tuberculosis was a subject of vital interest, inasmuch as one tenth of all deaths occurred from this disease. There were two things of special interest in combating the disease, one of which was notification of cases, and the other thorough disinfection of houses in which the disease had occurred. In the city of Buffalo every house in which a case of tuberculosis had developed was thoroughly disinfected. This had been the practice in that city for the last five years. A card index was of vital importance in keeping track of cases of the disease. The people should be educated in regard to the prevention and control of the disease. Pamphlets giving directions how to prevent getting the disease were printed in Buffalo in the German, English, Polish and Italian languages. Directions were also given as to what to do when people contracted the disease.

DR. FRANK WARNER of Columbus, Ohio, said the reporting of cases of tuberculosis was an important factor in the prevention of the disease, but it was only the first step. This should be followed with literature placed in the hands of families in which the disease had developed. Information regarding the disease should also be published and put into the hands of men working in stores and shops. Articles relating to the disease should be published in the daily newspapers for the edification of the public. He pointed out the importance of educating the people through the press and other agencies. The disinfection of houses after deaths had occurred was of great importance in order to destroy the germs of the disease. Testing for tuberculosis in cattle by tuberculin had proved very important. At the Ohio State University there was an agricultural and dairy department, so that every cow was constantly tested with tuberculin for tuberculosis, and whenever the disease was found in a cow, that animal was withdrawn from the herd.

DR. R. H. LEWIS of Raleigh, N. C., indorsed the position taken by the previous speaker. In his state pamphlets concerning the disease and its prevention were placed in the hands of superintendents of public instruction and of school teachers for distribution. The active co-operation of the family doctor should be enlisted.

DR. MARCUS HAAS of Memphis, Tenn., agreed with the speakers in regard to educating the public as to the prevention and control of the disease. Negroes in the South were more susceptible to the disease than whites. He referred to the thorough system of dairy and milk inspection in Memphis, saying that gratifying results had been obtained by it.

DR. W. C. CHAPMAN of Toledo, Ohio, said that sanitarians should not demand too much of the physician, for in doing so they would undo the benefit which they might otherwise receive. Physicians were reluctant in reporting cases of tuberculosis to city health departments, on account of the protests of families in which the disease had developed.

DR. MANUEL S. IGLESIA of Vera Cruz, Mexico, described the present hygienic conditions of that city, and expressed the hope that at no distant day this port would be one of the healthiest to be found.

DR. ARISTIDES AGRAMONTE of Havana pointed out in an interesting and scholarly paper the practical utility of a medical board to aid local sanitary authorities in the investigation of infectious disease.

DIPHTHERIA INFECTION IN MINNESOTA, ESPECIALLY IN SCHOOL CHILDREN AND INSTITUTIONAL EPIDEMICS.

DR. F. F. WESBROOK of Minneapolis stated that in the work of the Minnesota State Board of Health the problems had naturally arranged themselves into three main groups: First, the work of dealing with diphtheria as it occurred in family life, where one or more cases appeared in a household. Second, where infection was widespread and the day schools had to be closed. Third, where infection gained entrance into institutions in which children or other inmates were housed, employed, taught or confined, and where great opportunity for the spread of infection was present.

In summing up the work, he said it was apparent, (1) that an adequate laboratory staff and equipment were essential since only by thorough laboratory examination could the presence of possible danger be determined. (2) It had been found convenient to utilize institutional laboratories when available, as the members of the laboratory staff of the State Board of Health could examine cultures on the spot when there was urgent need of haste. (3) The repetition of examination of both nose and throat specimens was advisable in all cases, and especially when suspicious bacilli were found. (4) Every effort should be made to prevent the exchange of nose and throat bacteria between individuals until it was definitely known whether they were infected or not. In infected individuals the bacilli would be eliminated more quickly the greater the approximation to individual isolation. (5) It was unsafe to place hitherto uninfected individuals who developed sore throat with clinical cases of diphtheria. (6) Executive action must be taken on the basis afforded by the laboratory; therefore, it was essential that these two branches be kept in the closest touch, or that in the work of inauguration and supervision of methods a laboratory trained man be placed in charge. (7) That such methods give satisfactory results and were entirely practicable, had been shown in the experience of the Minnesota State Board of Health under conditions which presented the greatest possible variation. Three epidemics had thus been suppressed in a lying-in hospital in Minneapolis where there was no adequate nursing force, where the women before and after confinement were employed in the housework of the institution, where the babies were left in charge of different mothers at different times, and where also the almost daily admission of fresh inmates added to the opportunities for the introduction of infection. (8) The experience of Minnesota would seem to point decidedly to the conclusion that diphtheria infection is transmitted usually by almost direct exchange of flora of the nose and throat. (9) In institutional and school life the more independent the individual and the greater the facilities for individual infection, the greater the freedom from diphtheria infection.

DR. SAMUEL H. DURGIN of Boston followed with the report of the committee on the infectious period of communicable diseases.

SOCIAL HYGIENE.

DR. ADOLPHO OLIVA of Guadalajara, Mexico, read a paper on this subject, in which he pointed out the effects of dress on the system. He also discussed the

various forms of dress. He said that variations in temperature of the system with the climate, seasons, age, constitution, and the conditions of health or of disease fully demonstrated the physiological necessity of dress.

YELLOW FEVER IN MEXICO.

Dr. E. Liceaga of Mexico read a paper on this subject, in which, with the aid of numerous charts and diagrams, he described how houses that were infected with the disease were disinfected. As soon as a case of yellow fever was found, the patient was isolated, the mosquitoes and larvæ were destroyed. The Vera Cruz campaign against yellow fever had been very successful, in that there had not been any epidemic of the disease in that city for the last six months. He cited one case to prove, without doubt, that yellow fever was transmitted by mosquitoes alone.

CONTROL OF THE MILK SUPPLY IN LARGE CITIES.

Dr. Wm. H. Park of New York City, chairman of a committee, read a report on this subject. The topic was divided under three heads: (1) The proper conditions at the farms. (2) Proper conditions during transportation of the milk, and (3) Proper conditions at the delivery station and in the care of the milk in the homes.

Until recently the conditions at the farms had been largely overlooked by the health officers of great cities, on account of the practical difficulties and the expense. The Milk Commission appointed by the Medical Society of the County of New York had undertaken to assist both the consumer and producer by fixing a standard of cleanliness and quality to which it could certify, and by giving information concerning measures needful for obtaining that degree of purity. The most practical standard for the estimation of cleanliness in the handling and care of milk was its relative freedom from germs or bacteria. Milk must not be sold as certified more than twenty-four hours after its arrival in New York City.

The report discussed the duties and requirements of dealers in milk, the barnyard, the stable, the condition of the cows, the milkers, helpers other than milkers, small animals, the milk itself, the utensils for holding milk, as well as the examination of the milk and dairy inspection.

Dr. Gonzalo Arostegui of Havana discussed the importance of good quality and careful distribution of the milk supply.

INFANTILE FEEDING BY NURSES.

Dr. Alfonso Pruneda of Mexico read a paper on this subject, and said it was necessary always to advocate the need of maternal lactation, which was really adequate from every point of view, but in the event of this being found impossible, we should not hesitate to adopt some other methods, and especially should we avoid the employment of wet nurses who, as the writer pointed out, presented many objections, but rather make use of sterilized milk, which, when properly and methodically used, would fulfil its purpose, and thus save the lives of many children who would under other conditions perish and increase the infant death-rate.

PRODUCTION OF ANIMAL VACCINE.

Dr. W. F. Elgin, of Glenolden, Pa., followed with a paper in which he described experiments and his experience in the production of animal vaccine. The author pointed out: (1) that virus exposed to cold below 0° C., might remain active for an indefinite period, certainly for several years. (2) That when it was removed from cold storage, it would retain its activity for a considerable period under conditions that usually obtained commercially. (3) That when glycerinated lymph was exposed to 0° C. or below, the destruction of germ life through the action of the glycerine was practically at a standstill. (4) The rapidity of the elimination of the contained bacteria depended upon the temperature above 10° C., in which the virus was stored.

The writer showed that the life of the average commercial vaccine was only three months in winter, and in August and September only about one month. Two lessons might be learned from this: First, one should not vaccinate in the summer season unless compelled to do so by the presence of smallpox. Second, when compelled to vaccinate at this season, one should order direct from the laboratory the vaccine, and use it at once without regard to the dating on the package.

After discussing the forms of preparing vaccine, the author stated that dried vaccine in any form was short-lived, and not nearly so reliable as the glycerinated form. The most active virus was to be obtained from the deep curetting.

Dr. F. P. Bernaldez of Mexico cited facts and arguments which tended to demonstrate the superiority of humanized over animal vaccine for the prevention of smallpox. He claimed that persons who were vaccinated and revaccinated with humanized lymph enjoyed a longer immunity, according to his observations, and in Mexico he had never seen a case so vaccinated attacked by smallpox. His practice had taught him that in such persons revaccination did not take, or at most assumed the appearance of false vaccination, thus proving in his opinion that the individual was not susceptible. He urged that vaccination be practiced by physicians of experience in order to avoid the possibility of transmission of disease.

Dr. Vincente de la Guardia of Havana spoke of the necessity of vaccination and revaccination of individuals who had suffered from smallpox. He said that in most countries nowadays there was no vaccination requirement for individuals who had had smallpox. He had had the opportunity of vaccinating and revaccinating 1,599 persons, members of the police department, custom-house inspectors, port policemen, persons confined in jails, males and females, etc. Of this number, 328 were branded with the smallpox trademark, and of 47 of whom were vaccinated for the first time in their lives, 17 were successful in taking. Two hundred and sixty-three were revaccinated, in 48 of whom it took successfully, giving a total of 65 successful vaccinations. The total result of the 328 who had had smallpox previously corresponded approximately to over 20% of the total figures. The author concluded by insisting that, as a general rule, all individuals, whether they be ex-victims of smallpox or not, should be vaccinated or revaccinated, as the case might be.

STEGOMYIA FASCIATA.

Dr. Fernando Lopez of Mexico detailed some experimental studies on the acclimatization of this pest. The experiments seemed to prove that the stegomyia fasciata could live, bite and breed for, at least, three generations in Mexico City, notwithstanding the fact that this city had an altitude of more than 7,300 feet above sea level.

OFFICERS.

The following officers were elected for the ensuing year: President, Dr. F. F. Wesbrook, Minneapolis, Minn.; First Vice-President, Dr. Juan Guiteras, Havana, Cuba; Second Vice-President, Dr. F. Lopez,

Mexico City, Mexico; Third Vice-President, DR. GEO. MACDONALD, Brandon, Manitoba; Executive Council, Drs. MARCUS HAAS, Memphis, Tenn.; C. V. CHAPIN, Providence, R. I., and WM. C. CHAPMAN, Toledo, Ohio; Secretary, DR. CHAS. O. PROBST, Columbus, Ohio, re-elected; Treasurer, DR. FRANK W. WRIGHT, New Haven, Conn., re-elected.

After the introduction and adoption of resolutions of thanks to the local Committee of Arrangements, the President of the Republic of Cuba and the Minister of the United States, for the receptions so graciously given in honor of the members, the Association, on motion, adjourned to meet in the city of Boston, Mass., 1905.

MEETING OF THE LABORATORY SECTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

The meeting of this Section was held at the General Wood Laboratory, Havana, Cuba, Jan. 9, 1905, under the Chairmanship of Dr. V. A. Moore of Ithaca, N. Y.

The session was devoted very largely to water and sewage. MR. GEORGE W. FULLER of New York, Chairman of the Committee on "Standard Methods of Water Analysis," submitted an exhaustive report on the changes and improvements in the methods that are being used in bacteriological tests of water. The report was ordered to be distributed to bacteriologists both in this country and in Europe.

Reports of committees on a variety of technical subjects and several papers on bacteriological topics were read.

THE PERSISTENCE OF AGGLUTINABILITY IN TYPHOID BACILLI IN WATER.

PROF. EDWIN O. JORDAN of Chicago contributed a paper on this subject. Both the theoretical and practical problems involved by either a positive or a negative result from experiments upon the agglutinability of typhoid bacilli in water were of considerable interest and importance. This work had dealt chiefly with two aspects, — that of the separation of bacillus typhosus and bacillus coli from mixtures of various ages in both tap water and previously sterilized sewage, and also the persistence of the agglutinability of the former after association with the latter for similar periods.

The conclusions drawn were: (1) That the typhoid bacillus may be isolated without special difficulty after association with bacillus coli in tap water and sewage for from at least twelve to twenty days. (2) That some strains of bacillus typhosus retain their property of agglutinability absolutely intact under these conditions.

A CAUSE OF THE FORMATION OF GAS IN CANS OF CONDENSED MILK.

MR. CHAS. W. DODGE of Rochester, N. Y., stated that bacteriological investigations of the condensed milk in cans, which were found to bulge shortly after their preparation, failed to find any micro-organisms which, either singly or in combination, would cause the fermentation of either dextrose or lactose under a variety of conditions usually favorable to such fermentations. Neither would the milk itself from such cans cause fermentation in fresh milk. It was found, however, that when dilute solutions of butyric or lactic acid, varying from $\frac{1}{2000}$ to $\frac{1}{500}$ in distilled water, were allowed to act upon the metal of which the cans were made, a slow evolution of gas took place, its rapidity being inversely as the dilution of the acid. It was probable that in the instance cited the gas was formed not by the bacteria directly, but by the electrolytic action between the metal of which the cans were composed and the acids generated by the growth of bacteria in the milk before the latter was condensed.

AN UNUSUAL CHANNEL OF INFECTION WITH THE BACILLUS SHIGA.

MR. DODGE stated that a laboratory worker accidentally broke a test tube containing a culture of the shiga bacillus, and some of the fluid was carried to his eye and was probably washed down into the pharynx.

Twenty-four hours later typical clinical symptoms of acute dysentery appeared, and lasted for several days. This occurrence of the accident and the infection might be merely a coincidence, but, if not, the occurrence threw light on the rapidity of infection in dysentery in man.

AN IMPROVEMENT IN THE TECHNIC OF THE INDOL TEST.

DR. JOSEPH MCFARLAND and DR. J. HAMILTON SMALL of Philadelphia contributed a joint paper on this subject. In order to render it possible to determine the presence of small quantities of indol in bouillon cultures, the following improved technic was devised: The culture to be tested received an addition of one drop of chemically pure sulphuric acid for each cubic centimeter of fluid, this being well shaken. In case the micro-organisms produced both indol and nitrites, the red color now made its appearance. When, however, the organisms produced no nitrates, the usual dilute solution of potassium nitrite was allowed to trickle slowly down the side of the tube and form a layer on the surface of the fluid it already contained. The red color of the nitroso-indol now made its appearance at the line of contact of the two fluids. Tests on artificially prepared solutions of indol of upwards of $\frac{1}{750000}$ gave positive results. The authors stated that this improved method was applicable for showing the presence of indol in melted gelatine cultures. After the gelatine had hardened, the color ring was fixed for a period of from twelve to twenty-four hours, when the color became diffused.

MR. FREELAND HOWE, JR., detailed some results in the use of different kinds of nutrient media with different periods of incubation, and gave the results of observations on the water of the Susquehanna River at Harrisburg, Pa.

DR. F. C. HARRISON of Guelph, Ontario, gave the results of an examination of the water supply of Fredericton, New Brunswick. He discussed briefly the sewerage and water supply systems of that city.

MR. EARL B. PHELPS of Boston contributed some notes on the determination of the organic nitrogen in sewage by the Kjeldahl process.

The election of the Laboratory Section resulted as follows: Chairman, DR. WM. H. PARK, New York; Vice-Chairman, MR. H. W. CLARK, Boston; Secretary, DR. JOHN S. FULTON, Baltimore, and Recorder, DR. H. D. PEASE, Albany.

THE SMOKE NUISANCE IN WASHINGTON. — A congressional resolution has been passed directing the District of Columbia Committee of the House to cause an expert investigation of the smoke nuisance to be made, with a view to abating it. The resolution recites that the report of the committee should embrace an enumeration of the most serious offenders and be accompanied by recommendations as to appropriate remedies and necessary legislation, supervision and control. — *Medical Record.*

THE BOSTON

Medical and Surgical Journal.

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SEA VOYAGES FOR TUBERCULOSIS.

IT is becoming increasingly evident that the treatment of tuberculosis is not likely to be neglected in the immediate future. A plan which we have not before seen is alluded to in an editorial in a recent number of the *Lancet*, which provides sea voyages for persons suffering with the disease. Arrangements are said to have been made by the Hamburg-American Steamship Company to provide such voyages for tubercreulous cases. A Scotch physician suggests a still more striking scheme, which is to charter a large sailing vessel to leave England toward the end of January for a long voyage in warm latitudes carrying not more than fifty consumptives, together with inebriates and other invalids. It is proposed to visit various ports in tropical countries, affording opportunity for brief land trips and for such other amusement as may not be inconsistent with the general treatment.

The plan appeals to us as feasible, but on the whole unwise and not likely to be productive of the best good of the patients. Fresh air and a quiet life may certainly be obtained with as great an assurance of success on land as on the sea. The close quarters which any modern sailing vessel could provide would seem to be a distinct disadvantage, not to speak of the commingling of patients in a very limited space. The *Lancet* thinks that, however much exercise may theoreti cally be taken on the deck of a vessel, such exercise is liable to interruptions, and that a sloping deck is not perhaps ideal for such a purpose. In any case, persons availing themselves of this opportunity should be most carefully selected in relation to the stage of their disease, as well as to their temperaments. Could a wise selection of patients be made, we have no doubt such a voyage might be made both useful and profitable. As a definite and established means, however, of treatment of disease, we can see few advantages and many disadvantages over residence in dry regions on land. For inebriates and persons in general who are the victims of habits, we can, on the other hand, easily see a distinct advantage in such a voyage as providing a removal from temptation and a possibility, through change of scene and more or less active life on ship board, of gaining control of the addiction, whatever it may be. The mixture, however, of the inebriate and the victim of tuberculosis is a questionable procedure to say the least.

The *Lancet* on the whole thinks well of the plan, therein expressing a somewhat contrary opinion to that in its issue of Dec. 31, wherein, speaking of tuberculosis, it regards the enthusiasm which has recently prevailed in the treatment of the disease as somewhat unbalanced. We may, in any case, be sure that no stone will be left unturned in the present state of both professional and public opinion to devise all possible rational means of combating the disease. It should, however, be remembered that over-enthusiasm may at times defeat its own ends.

BOSTON'S MEDICAL BATHS.

IN our issue of Dec. 31, 1903, we commented editorially upon the establishment of an institute where hydrotherapeutic measures and other forms of physical treatment might be given. Such an establishment has now been in active and successful operation for a year under the general name of the Medical Baths. From the report written by Dr. J. J. Putnam for the committee, it appears that the year's work has been distinctly encouraging to the promotors of the enterprise, although a greater degree of interest on the part of the medical profession is much to be desired if the plan is to develop in the future and accomplish all that it should. During the winter and spring months, after its opening in December, 1903, the attendance in general was increasingly satisfactory, and one hundred and twelve patients were treated, from whom upwards of two thousand dollars were collected. The natural expense of starting such an enterprise and the preliminary repairs, which were somewhat unexpectedly great, necessitated a larger expenditure than had been anticipated, so that the baths now find themselves in a slightly embarrassed financial condition. At a meeting held last November the feeling was

generally expressed that the baths should be continued, that the interest of a wider circle of physicians should be excited, and that the work, so far as possible, should be expanded to include other forms of treatment than that by water. Writing in his report of the present situation, Dr. Putnam says:

"The new year has opened prosperously. During November the attendance has been steadily increasing, and the income of the past week has been larger than that of any week since May. We feel certain that with proper interest and support, this debt can be paid within a reasonable time, and progress made toward paying other debts. This support and interest should be freely given. There is no physician in the city to whom it is not worth some sacrifice to be able to command the advantages offered in this place, in the equipment of which so much care and thought has been expended, made possible through the generosity of friends. With the increasing experience of our operators, there is no malady for which patients now take long journeys to distant water-cure establishments that cannot here be adequately treated. It is, moreover, unique in being a physician's establishment, founded to promote the needs of the profession and their patients, as well as the education of students and nurses as far as that is practicable, and conducted in such a manner that physicians can send their patients without the fear that their relations to them will be anything but strengthened. We are confident that a scrutiny of the place and of the work which has, even now, been done will ensure cordial recognition and support."

To the foregoing statement we have little to add beyond expressing the hope that the physicians of Boston and vicinity will more completely realize the possibilities of treatment which these medical baths are offering and give them their fullest support. After so auspicious a beginning, it would be unfortunate if Boston were now to be deprived of this method of treatment.

AWARD OF NOBEL PRIZES.

THIS year's award of the Nobel prizes, which went in each case to European investigators, has again brought up the question of the failure hitherto of Americans to receive one of these rewards for original work. It will be remembered that each prize amounts to $40,000, and that its bestowal is regarded as one of the greatest recommendations of work done in a variety of fields, of which medicine is one. No prize has ever come to America, and it is likewise true that no criticism has ever yet been made of the award. A matter which is perhaps not generally understood, however, has recently been suggested by one of our daily contemporaries as a possible cause of this failure of American investigators to receive this highest award of investigation. Quoting the *National Geographic Magazine* it is said that the reason is not due to lack of appreciation of progressive work in this country, but rather to the fact of a misunderstanding as to the conditions under which the awards are made. It appears that only such condidates are considered as are formally nominated by a society or institution of recognized character, and that as a matter of fact not a single American has been suggested as a candidate, with the result that the feeling abroad has grown that we in America are not interested in these prizes. It is suggested, and we think with reason, that enough work is being done in America to warrant at least the presentation each year of a candidate.

MEDICAL NOTES.

IRIDESCENT CALCULI. — J. Bland Sutton, F.R.C.S., in a recent number of the *British Medical Journal* reports a case of a man of thirty-eight in one of whose kidneys was found on operation upwards of forty thousand calculi which showed a remarkable iridescence.

STUDENTS AT COLUMBIA UNIVERSITY.— According to the registrar's report of Columbia College the college has increased more than 100% in the last ten years. Applied science has increased from 407 to 663, law from 251 to 342, but medicine has decreased from 779 to 560. This showing on the part of the medical department is probably due to the raising of tuition fees, and to the elevation of standard, and is certainly not peculiar to this institution.

INTERCHANGE OF PROFESSORS. — Emperor William, through the British Ambassador, is to lay before President Roosevelt a plan by which an interchange of professors between American and German universities may be accomplished. This matter has already been agitated and preliminary arrangements have been made between Harvard and Berlin. The Massachusetts Institute of Technology has also shown interest in the plan. Details naturally remain to be arranged. It is to be hoped that the plan will ultimately include men in the medical science as well as in others.

A TEST OF CHRISTIAN SCIENCE. — A somewhat novel method of determining the merits of Christian Science has been undertaken by the Nebraska Legislature, if reports are to be trusted. A bill is now before the legislature prohibiting the practice of Christian Science, but final action has been postponed by the adherents of the cult until they have had an opportunity of demonstrating their power to cure. It is proposed to restore

the hearing of an employee of the State Senate by their methods. The fate of the bill apparently depends upon the success or failure of this test. We await the result with more interest than doubt.

YELLOW FEVER IN THE CANAL ZONE. — A statement has been received in Washington regarding the conditions on the Isthmus of Panama. The report, which was from Governor Davis of the Canal Zone, was sent Jan. 17, and states that but three deaths from yellow fever have actually occurred since the government took charge, that the city of Panama is being disinfected, that the yellow fever cases have presumably originated in that city, and that probably the yellow fever transmitting mosquito will be exterminated within a month. It is also stated that not a case of yellow fever exists among the employees on the canal. The report of cases on the United States steamship "Boston" is later than the one we have quoted, and it is furthermore pointed out that these cases originated elsewhere than in Panama. The death, from yellow fever, of Assistant Surgeon Otto Kohlhase of the "Boston" is announced.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Feb. 1, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 38, scarlatina 32, typhoid fever 21, measles 3, pulmonary tuberculosis 33, smallpox 0.

The death-rate for the total deaths reported during the week ending Feb. 1, 1905, was 19.53.

BOSTON MORTALITY STATISTICS. — There were a large number of cases of pneumonia in the city last week, resulting in forty-one deaths. The total number of deaths, from all causes, was small, however, being only 204 as against 226 during the corresponding week last year, showing a decrease of 22 deaths and making the death-rate for the week 17.31. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 41 cases and 3 deaths; scarlatina, 30 cases, 2 deaths; typhoid fever, 13 cases 2 deaths; measles, 4 cases, no deaths; tuberculosis, 51 cases, 26 deaths. The deaths from pneumonia were 41, whooping cough 1, heart disease 18, bronchitis 10, maramus 3. There were 12 deaths from violent causes. The number of children who died under one year was 25, under five years 35, persons over sixty years 55, deaths in public institutions 59.

RETIREMENT OF DR. J. COLLINS WARREN FROM THE MASSACHUSETTS GENERAL HOSPITAL. — On the 31st of Jan. Dr. J. Collins Warren retired from active service as surgeon to the Massachusetts General Hospital. In commemoration of this event and in appreciation of the relations which have existed between him and his assistants, his surgical house officers, past and present, have presented him with a very beautiful punch bowl appropriately inscribed. The retiring age for surgeons at this hospital is sixty-three years. Dr. Warren's first appointment was to the medical out-patient department thirty-six years ago; thirty-five years ago he was transferred to the surgical out-patient department, and he has served the hospital for twenty-nine years as visiting surgeon.

ANNUAL MEETING OF THE ASSOCIATION OF MASSACHUSETTS BOARDS OF HEALTH. — The annual meeting of the Association of Massachusetts Boards of Health was held Jan. 27 in Boston. Papers were presented on the general subject of noises and their effects by Prof. E. S. Morse, Dr. P. C. Knapp and Dr. James J. Putnam. The subject of the smoke nuisance was also discussed. Resolutions were adopted at the meeting on the death of Dr. Samuel W. Abbott, late vice-president of the society and secretary of the State Board of Health.

AMERICAN NURSE HONORED BY THE JAPANESE. — Miss Mary E. Gladwin, who early in the outbreak of hostilities between Russian and Japanese resigned her position as matron of the Beverly, Mass., Hospital to go as a nurse to Japan, has returned after a service of six months and has resumed her position as matron of the Beverly Hospital. The Emperor of Japan conferred upon her the Order of the Golden Crown.

NEW YORK.

DEATH OF A MEDICAL PRELATE. — Mgr. George H. Doane, Vicar-General of the Roman Catholic Diocese of Newark, N. J., who died suddenly on January 20, was born in Boston, in 1830, and was graduated from the Jefferson Medical College. He apparently never practiced the profession of medicine.

DEFICIT OF ORTHOPEDIC HOSPITAL REMOVED. — At the annual meeting of the managers of the New York Orthopedic Dispensary and Hospital, held January 18, it was announced that the deficit of the institution, amounting to $22,000, had been done away with during the past year.

GIFT TO POST-GRADUATE MEDICAL SCHOOL. — Dr. D. B. St. John Roosa, President of the New York Post-Graduate Medical School and Hospital, announces that he has just received a gift of $5,000 from an anonymous donor, to be devoted to such needs of the institution as its authorities may determine upon.

MORTALITY AMONG STEERAGE PASSENGERS FROM PNEUMONIA. — In consequence of the unusual mortality which occurred among the steerage passengers of the Red Star steamship "Vaterland," which arrived on Jan. 24 from Antwerp, Dr. Doty, Health Officer of the Port, ordered the detention of the vessel in quarantine until an investigation could be made. During the voyage ten persons died, eight of whom were buried at sea, and just after reaching port another passenger succumbed. It was at first suspected that they might have been victims of the plague, although the disease was not known to exist in Europe at present, but the investigation made showed that they died of pneumonia, and on Jan. 27 the ship was released from quarantine.

DEATH-RATE FOR 1904. — The death-rate in the city for the year 1904 is officially announced as 20.32. President Darlington of the Health Department is of the opinion that this figure would be considerably lower if the correct population were known, and in the spring he intends to have a census of Greater New York taken by his department, for the purpose of determining the death-rate more accurately than is now possible. At present the rate is estimated on the basis of the Federal census of 1900, with the *probable* increase of population for the years following added, and the total thus arrived at is therefore largely a matter of conjecture.

ARREST FOR SWINDLING. — On Jan. 23, C. S. Andrews, attorney for the County Medical Society, caused the arrest on a charge of swindling, of two advertising doctors, H. H. Kane and W. B. Hale, who had been practicing upon the credulity of the public with a so-called radium cure. From one victim alone they had secured about $10,000 within a few weeks. This patient fortunately preserved some of the medicine which had been palmed off upon him, and a careful analysis of this by expert chemists showed it to consist merely of an ordinary tonic mixture containing a few simple drugs like iron and gentian.

A NOVEL SUIT FOR ALIENATION. — A novel suit has been brought in the Supreme Court, at White Plains, Westchester County, by Truman E. Spencer, a traveling salesman, against a firm of retail druggists in New York. He claims damages to the extent of $50,000 for the alienation of his wife's affections and the loss of her services, as well as the expenditures of large sums of money on his part in the effort to restore her to health, by reason of the druggists having sold his wife large quantities of morphine continuously for six years. The complaint alleges "that defendants knew that said morphine was used by her, and without the knowledge and consent of the plaintiff, and well knowing that while they so sold said morphine to her it was injurious and impairing her health; that said defendants concealed the fact of such sales of morphine and the use thereof from the plaintiff." Justice Keough decided that the suit should go to trial, a cause of action having been established.

Obituary.

EDWARD L. CUNNINGHAM, M.D.

IN the death of Dr. Edward Linzee Cunningham, which occurred at Newport, R. I., Jan. 29, the Harvard Medical School lost its oldest and Harvard College its second oldest graduate. He was ninety-five years old at the time of his death, and had his death not been hastened by a fall on the street, it is probable that his life might have continued several years longer. Dr. Cunningham was born in Boston, Jan. 2, 1810, and lived in this city until 1864, when he removed to Newport. He was graduated from Harvard College in 1829 in a class of fifty-nine members, including Oliver Wendell Holmes, James Freeman Clark, William Henry Channing, Benjamin Pierce, Charles Storer Storrow who died last year, and others distinguished in various walks of life. He stood high in his college class, and after his graduation completed the course at the Harvard Medical School. He practised, however, but little. Dr. Cunningham's interests were wide, although through his long life he had small connection with public affairs. On Jan. 10, 1878, he was a guest at the dinner when Dr. Holmes read his poem called "The Last Survivor," from which we make the following extracts:

Yes! the vacant chairs tell sadly we are going, going fast,
And the thought comes strangely o'er me, Who will live to be the last?
When the twentieth century's sunbeams climb the far-off eastern hill
With his ninety winters burdened will he greet the morning still?

Will he stand with Harvard's nurslings when they hear their mother's call
And the old and young are gathered in the many alcoved hall?
Will he answer to the summons when they range themselves in line
And the young mustachioed marshal calls out "Class of 29"?

Methinks I see the column as its lengthened ranks appear
In the sunshine of the morrow of the nineteen hundredth year;
Through the yard 'tis creeping, winding, by the walls of dusky red —
What shape is that which totters at the long procession's head?

Who knows this ancient graduate of fourscore years and ten, —
What place he held, what name he bore among the sons of men?
So speeds the curious question; its answer travels slow;
"'Tis the last of sixty classmates of seventy years ago."

His figure shows but dimly, his face I scarce can see, —
There's something that reminds me, — it looks like — is it he?
He? Who? No voice may whisper what wrinkled brow shall claim
The wreath of stars that circles our last survivor's name.

* * * * * * * * *

I can see our one survivor, sitting lonely by himself, —
All his college text-books round him, ranged in order on their shelf;
There are classic "interliners" filled with learning's choicest pith,
Each *cum notis variorum, quas recensuit doctus* Smith.

Physics, metaphysics, logic, mathematics — all the lot —
Every wisdom-crammed octavo he has mastered and forgot,
With the ghosts of dead professors standing guard beside them all;
And the room is full of shadows which their lettered backs recall.

How the past spreads out in vision with its fast receding train,
Like a long embroidered arras in the chambers of the brain,
From opening manhood's morning when first we learned to grieve
To the fond regretful moments of our sorrow saddened eve!

* * * * * * * * *

Farewell! our skies are darkened and yet the stars will shine,
We'll close our ranks together and still fall into line
Till one is left, one only, to mourn for all the rest;
And Heaven bequeath their memories to him who loves us best!

Correspondence.

A FORM OF HOSPITAL ABUSE AND ITS REMEDY.

BROOKLINE, Jan. 26, 1905.

MR. EDITOR: In connection with the recent discussion of the subject of medical charity, at the Boston Medical Library meeting, Jan. 11, I desire to call attention to a form of hospital abuse which has not been mentioned. I refer to the harm which results from the ignorance of outside physicians as to the facts learned about their patients while at the hospitals.

The unusual opportunities for the observation and study of cases make it possible to obtain more information about a patient in a hospital than outside. Knowledge otherwise obtainable may be acquired at the time of an operation. It is very important that this information should be in the possession of the physician who is to look after the patient when he leaves the hospital, and it may be absolutely essential to the welfare of an individual that these facts are known to his medical attendant.

It often happens that, when a patient consults his physician after leaving the hospital, he finds the latter so ignorant of his condition that his confidence is lost and he consults someone else who is not only ignorant of what is known at the hospital, but also of what the former attendant had learned. Most of us have seen how treatment at a hospital was the beginning of the habit of wandering from one physician to another to the great detriment of the patient.

The remedy for such a condition is obvious — the attending physician should be informed of the essential facts of the case when the patient is discharged. With a proper system this could easily be accomplished, especially at large hospitals where a stenographer is employed. The following plan is suggested:

On leaving the hospital each patient is handed a card which states that his physician will be notified of his discharge and of his condition and treatment while at the hospital. Each house-officer should dictate to a stenographer a brief report of each patient to be discharged on that day. In this report would be given a few essential facts in the history of the case since entrance, the results of important examinations and of operations, the diagnosis and the treatment. It should not take more than five to fifteen minutes a day for a house-officer to dictate all of his reports, and with a proper set of blanks to be filled out, the stenographer's work could be made very simple. The sum of two hundred and fifty dollars a year would probably cover the expense of sending all the necessary reports in a hospital of three hundred beds.

It may be said that this information can be obtained by the physicians themselves if they apply to the hospital. It is exceedingly difficult, however, and a very time-consuming affair to the physician, to get any direct and accurate information about his patients, and he has the feeling that he is putting someone to a great deal of trouble. As a result most men do not find out about their patients.

There are three principal advantages of such a plan as the one outlined.

(1) *The advantage to the patients*, and especially to the better class of hospital patients. This has already been emphasized. If this should become a practice at the hospitals it would be a great benefit gained for the sick poor of the community.

(2) *Its educational value to physicians.* The opportunities which most physicians have to control their diagnoses and learn their mistakes by means of consultations or by autopsies are very few. If they could know the facts about every case sent to the hospital their opportunities for learning in this way would be greatly increased. A physician would find out what examinations had aided in making the diagnosis, and he would so learn the value of new scientific methods.

(3) *Its value for medical research.* There are physicians of large experience, not connected with hospitals, who have been well trained and who should contribute more than they do to the advancement of medical knowledge. Such men would be stimulated to do this if they were able to follow all of their cases and could keep more in touch with hospitals and the methods employed there. Furthermore, if physicians knew that they would be informed about their cases, they would be glad to send their unusual and obscure cases to the hospital, instead of feeling as at present that they must hold on to them if they are to learn anything from them. In this way the hospitals would receive a larger proportion of the unusual and rare diseases, thus increasing their opportunities for medical research.

As the three chief functions of a hospital are, to care for the sick poor, to educate physicians, and to increase medical knowledge, it would seem that a minute portion of the hospital funds could not be spent in any better way to promote these objects.

Very truly yours,

FRANCIS P. DENNY, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 21, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York . .	3,908,644	1,516	439	20.25	22.09	2.64	.79	1.98
Chicago . . .	1,990,750	591	172	26.90	20.30	1.52	1.52	—
Philadelphia	1,407,968	519	127	21.58	18.11	1.93	2.31	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	167	50	19.16	17.96	1.20	.60	.60
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati .	338,327	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	79	20	13.92	31.65	—	—	—
Boston . . .	617,950	256	53	12.50	22.26	2.73	—	—
Worcester . .	136,925	39	15	7.69	10.25	—	—	.51
Fall River . .	119,349	38	17	21.04	34.20	—	—	—
Lowell . . .	104,402	28	9	10.71	28.57	—	3.57	—
Cambridge .	100,998	32	8	21.87	18.75	3.12	—	—
Lynn	78,875	28	5	3.57	39.28	—	—	—
Lawrence . .	72,348	—	—	—	—	—	—	—
Springfield .	72,020	26	7	11.53	30.77	—	—	—
Somerville .	70,413	17	5	11.76	23.53	5.88	—	—
New Bedford	68,863	27	—	14.81	7.40	11.10	—	—
Holyoke . . .	50,538	17	8	11.76	11.76	5.88	—	—
Brockton . .	46,601	8	1	25.00	—	—	—	—
Newton . . .	39,310	6	1	—	16.67	—	—	—
Haverhill . .	39,061	15	2	40.00	13.33	—	—	—
Malden . . .	37,205	10	1	—	20.00	—	—	—
Salem	37,188	14	1	14.28	—	—	14.28	—
Chelsea . . .	36,499	20	8	10.00	15.00	5.00	—	—
Fitchburg . .	36,353	8	2	—	12.50	—	—	—
Taunton . . .	34,577	13	0	7.70	7.70	—	—	—
Everett . . .	30,209	5	—	20.00	—	—	—	—
North Adams	29,201	3	1	—	33.33	—	—	—
Quincy . . .	26,798	5	3	20.00	20.00	20.00	—	—
Gloucester .	26,127	9	3	11.11	—	11.11	—	—
Waltham . . .	25,797	5	—	20.00	—	—	—	—
Brookline . .	23,576	2	—	—	—	—	—	—
Pittsfield . .	22,870	5	—	20.00	20.00	—	—	—
Medford . .	21,956	3	—	33.33	33.33	—	—	—
Chicopee . .	21,692	4	1	25.00	25.00	—	—	—
Northampton	20,314	3	0	—	—	—	—	—
Beverly . . .	15,807	8	—	—	25.00	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	1	0	—	—	—	—	—
Adams	14,745	2	1	50.00	—	—	—	—
Attleboro . .	14,561	3	2	66.67	—	—	—	—
Hyde Park .	14,500	5	—	—	—	—	—	—
Newburyport	14,478	9	1	11.11	—	—	—	—
Woburn . . .	14,315	4	2	25.00	25.00	—	—	—
Melrose . . .	13,819	2	—	—	—	—	—	—
Westfield . .	13,809	2	—	—	50.00	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	10	1	—	50.00	—	—	—
Revere . . .	13,609	2	—	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . .	12,324	2	—	—	—	—	—	—
Southbridge .	11,716	3	1	33.33	33.33	—	—	—
Watertown .	11,575	—	—	—	—	—	—	—
Weymouth .	11,350	2	0	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 2,563; under five years of age, 967; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 712; acute lung disease 746, consumption 377, scarlet fever 22, whooping cough 7, cerebrospinal meningitis 33, smallpox 1, erysipelas 12, puerperal fever 17, measles 11, typhoid fever 37, diarrheal diseases 86, diphtheria and croup 77.

From whooping cough, New York 1, Chicago 3, Philadelphia 2, Providence 1. From scarlet fever, New York 14, Chicago 3, Philadelphia 2, Providence 1, Boston 2. From cerebrospinal meningitis, New York 30, Baltimore 1, Worcester 2. From smallpox, Chicago 1. From erysipelas, New York 5, Chicago 2, Philadelphia 4, Boston 1. From typhoid fever, New York 12, Chicago 9, Philadelphia 12, Baltimore 1, Fall River 1, Salem 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending Jan. 7, 1905, the death-rate was 19.9. Deaths reported 5,955; acute diseases of the respiratory organs (London) 275, whooping cough 97, diphtheria 70, measles 123, smallpox 3, scarlet fever 40.

The death-rate ranged from 10.0 in Leyton to 37.4 in Merthyr Tydfil; London 18.5, West Ham 15.2, Brighton 15.6, Southampton 15.9, Plymouth 24.7, Bristol 19.6, Birmingham 21.2, Leicester 12.8, Nottingham 28.8, Birkenhead 16.6, Liverpool 23.6, Wigan 21.7, Bolton 17.3, Manchester 22.6, Salford 21.8, Halifax 23.1, Bradford 24.7, Leeds 20.5, Hull 22.0, Sheffield 21.3, Newcastle-on-Tyne 18.9, Cardiff 19.7, Rhondda 23.4, Whilesden 15.9, York 20.9, Hanley 25.0.

METEOROLOGICAL RECORD.

For the week ending January 21, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 15	30.26	14	23	6	51	55	53	W	S W	8	12	C.	C.	0
M. 16	30.01	24	31	17	52	60	56	S W	S W	15	12	C.	C.	0
T.. 17	29.97	28	35	22	52	70	61	W	W	17	10	C.	O.	0
W. 18	30.14	32	36	27	60	88	74	W	S E	10	12	O.	C.	0
T.. 19	29.70	39	49	29	78	73	76	S	W	15	15	O.	C.	0
F.. 20	29.94	34	42	27	48	48	48	W	N	4	8	O.	F.	0
S.. 21	30.18	28	33	22	52	80	66	N W	S	10	5	O.	N.	T.
☞	30.03		36	21			62							T.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

BOOKS AND PAMPHLETS RECEIVED.

A Text-Book of Physiological Chemistry. By Prof. Olof Hammarsten. Authorized Translation from the Author's Enlarged and Revised Fifth German Edition by John A. Mandel, Sc.D. Fourth Edition. New York: John Wiley & Son. 1904.

The Medical Record Visiting List or Physician's Diary for 1905. New Revised Edition. New York: William Wood & Co.

The Perpetual Visiting and Pocket Reference Book, including Information in Emergencies, from Standard Authors. St. Louis, Mo.: Dios Chemical Co. 1904.

A Guide to Anæsthetics for the Student and General Practitioner. By Thomas D. Luke, M.B., F.R.C.S. (Ed). Illustrated. Second Edition. Edinburgh and London: William Green & Sons. 1905.

Transactions of the American Climatological Association. For the Year 1904. Vol. xx. Philadelphia. 1904.

Physician's Pocket Account Book. By J. J. Taylor, M.D. Philadelphia: The Medical Council.

A Consideration of Some of the Methods to be Pursued in the Diagnosis of the Diseases of the Rectum and Anus from the Standpoint of their Practical Importance to the General Practitioner. By Lewis H. Adler, Jr., M.D. Reprint.

Some Random Notes on Diseases of the Rectum. By Lewis H. Adler, Jr., M.D. Reprint.

The Relation of the Pauper Inebriate to the Municipality and the State from the Economic Point of View. By Lewis D. Mason, M.D. Reprint.

Some Points in the Acoustics of Respiration. By Charles E. Quimby, M.D. Reprint.

The Importance of the Study of the History of Medicine By Eugene F. Cordell, M.D. Reprint.

Quarterly Report of the Board of Health of the Department of Health of the City of New York for the quarter ending Dec. 31, 1903.

General Management and Therapeutics of Nephritis. By Beverley Robinson, M.D. Reprint.

Addison's Disease, with and without Adrenal Tuberculosis. By Charles F. Withington, M.D. Reprint.

First Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. By the Director, Andrew Balfour, M.D., B.Sc., M.R.C.P., Edin., D.P.H. Camb. Illustrated. Khartoum: Department of Education, Sudan Government. 1904.

Transactions of the Association of American Physicians. Vol. xix. 1904.

Oral Hygiene in the Public Schools. By Alice M. Steeves, D.D.S. Reprint.

Is a Medical Education a Necessary Qualification for Dental Practice? By Alice M. Steeves, D.D.S. Reprint.

Medical and Dental Libraries. By Alice M. Steeves, D.D.S. Reprint.

Medical Laboratory Methods and Tests. By Herbert French, M.A., M.D. (Oxon.), M.R.C.P. (Lond.). Illustrated. Chicago: W. T. Keener & Co. 1904.

Zur Frage der Bottinidiscision der Prostata. Von Dr. Rörig. Reprint.

Original Articles.

A CASE OF CHYLOUS CYST OF THE ABDOMEN.*

BY MAURICE H. RICHARDSON, M.D.,
Professor of Clinical Surgery, Harvard University.

JOSEPH P., aged eleven, patient of Dr. Robert A. Reid, Newtonville, one of six children, of healthy parents, was noticed in the summer of 1903 to have a fullness in the abdomen. This fullness was especially prominent over the navel and over the right side. The patient suffered somewhat from nervous symptoms and at times had acute indigestion. His mother said it seemed as if something were pressing on the large intestine.

Dr. Reid referred this patient to me in October, 1904, with the opinion that fluid of some character was present in the abdomen, but not free in the peritoneal cavity. In the first week of October, the patient had had nausea and vomiting which lasted a number of hours. With the nausea and vomiting there was diarrhea, but there was no pain. A year before the patient began to have what seemed to be "falling spells," and the family thought that it was chorea. He would hold his throat and say that he could not get his breath. These attacks, however, proved to be of trivial nervous nature, and they disappeared. In June of the present year he showed signs of abdominal distention. He was easily fatigued and short of breath.

On physical examination I found a rather thin, cachectic boy with a very prominent abdomen. He was extremely emaciated; the ribs were prominent; and over the epigastrium on both sides the cage of the thorax was much dilated. The fluid pushed out in all directions the costal margins. The abdomen was much distended and contained fluid. Repeated and careful examinations seemed to show fluid filling the abdominal cavity and perfectly free. The temperature was 100°.

I made a diagnosis of tubercular peritonitis, advised operation in the near future, and gave a guarded prognosis. On Oct. 21, 1904, I opened the abdomen, making a small incision between the umbilicus and pubes. As I dissected through the abdominal layers I spoke of the changes which would be seen in the peritoneum, saying that it would be thickened, opaque, pearly, with miliary nodules. I went straight into the peritoneal cavity, however, finding none of these changes, and came upon a white, fragile-walled cyst covered with small blood vessels, most of which ran transversely. The ascending colon and caput cæci were out of sight to the right. The tumor filled the peritoneal cavity. The incision was then enlarged sufficiently to admit the hand. The cyst was then seen to be retro-peritoneal, extending up under the liver and to the right. It seemed at first to be a hydronephrosis, for in close approximation with the upper part of it I could feel the right kidney.

Having determined to attempt the enucleation of this cyst, I began by tying across its vascular peritoneal covering in sections, with the Cleveland needle. The cyst was then easily separable. Separation, however, ruptured here and there the thin-walled sac, allowing a milky fluid, suggesting chylous cyst of the mesentery, to escape. I proceeded very deliberately to divide all attachments in sections with the needle, and to cut between the sutures. The cyst was emptied through an incision in its wall, and the contents (eight pints) escaped into a basin. The collapsed sac was then carefully separated from all attachments, the dissection being made with blunt curved scissors and gauze. The ascending colon, hepatic flexure of colon, and vertical portion of the duodenum were successively separated. At no place was there any mesentery, or any omentum. No mesenteric vessels whatever were either seen or divided. A considerable area of attachments was left after the separation had been carried down to the very base, which was the anterior surface of the right kidney. It seemed as if the cyst were in reality renal. Although the attachments were more dense and less easily separated here than elsewhere, there was no real connection between the cyst and the kidney. The blood vessels here were small; even in the very depths of the dissection it was unnecessary to apply ligatures or snaps. The cyst was, in fact, retro-peritoneal; but it involved the actual structure of no organs whatsoever. Nor were the essential attachments of any organ involved. Ligation of the whole anterior covering of the tumor did not compromise in the least the blood supply of the intestine. Of this I am positive, for I was on the lookout for the mesenteric blood supply of the colon, so often destroyed in operations upon the pylorus. The visceral boundaries of the cyst above were the base of the gall bladder and the parts about the foramen of Winslow. To the left were the second (vertical) portion of the duodenum and the angle of the hepatic flexure of the colon and caput cæci, as well as the usual reflexion of the peritoneum from the loin. Posteriorly were the right kidney, the lumbar and iliac muscles. From this attachment the anterior cyst wall had become stretched until it filled and was in contact with the whole peritoneal cavity. The actual visceral attachments, left bare and raw by the separation, were the structures mentioned. This raw surface was immediately closed and covered by the falling into normal position of the duodenum and colon.

No dilated lymph vessels were seen. In fact, nothing whatever abnormal was detected. Whether the cyst was a dilatation of the receptaculum chyli or one of its tributaries, I could not make out. After the removal of the sac there was no escape of fluid and no evidence of a dilated lymph or other vessel. The base of the tumor did not reach into the space occupied by the receptaculum, nor was it as high as this reservoir.

The gross appearances of the tumor suggested at once a chylous cyst. It did not in any way, however, involve the mesentery. Indeed, it was remote from the mesentery.

After the removal of this cyst the boy made a rapid and very satisfactory recovery. Dr. Reid reports that he is gaining in flesh and strength every day, and that he is getting fat and rosy. On Feb. 1, 1905, the father wrote: "I am glad to report that our son Joseph is back in school again, and able to do anything and everything other boys of his age do."

Dr. W. F. Whitney's report is as follows:

The specimen consisted of a thin-walled sac which must have contained about a litre of fluid. Upon examination it showed one very smooth, fibrous looking surface, the other slightly rougher.

Microscopic examination showed one wall to be composed of rather loose fibrous tissue in which were numerous relatively large blood vessels, many of them filled with blood. Next to this came a zone of denser fibrous tissue in which were bundles of what seemed to be smooth, muscular fibre, and these were also

* Read before the Obstetrical Society of Boston, Oct. 25, 1904.

found lying directly on the other surface on which, in one or two places, a few scattered endothelial or epithelial cells were found.

The contents received from this consisted of 500 cc. of a milky fluid, the specific gravity, 1,020, and abundant albumin. On testing with osmic acid a slight blackish discoloration was noticed. After destroying with sulphuric acid and centrifuging, a curd-like layer was thrown to the top of the tube. On testing this with osmic acid a very marked black precipitate was formed showing the presence of free fat.

Microscopic examination of the fluid showed a finely granular compound in which were numerous large granular corpuscles.

Diagnosis; Chylous cyst.

The diagnosis in this case was extremely interesting to me. It illustrated what I have been preaching and practicing for a good many years, namely, that one must not be too sure in assuming that a case is a grave one or a hopeless one, on the strength of his diagnosis. I never felt more firmly convinced of the truth of my opinion than I did in this case. The chances seemed to me a hundred to one that this was tubercular peritonitis. Whatever one's belief and experience may be as to the practical treatment of tubercular peritonitis — whether by incision, aspiration, or by purely medical methods—a chylous cyst like that in the present case certainly does not admit of any relief except by surgical means. One who does not believe in surgical measures in these cases must be very sure of the truth of his opinion if that opinion is adverse to operation. Time and again I have operated in cases of what I could not but believe to be hopeless disease, and have found an easily remedied condition of things, but a condition which if left to itself would have been necessarily fatal. Not that I would recommend exploratory operation for the sake of diagnosis; but I would raise my voice against the assumption that any human opinion is necessarily correct, especially if that opinion condemns a patient to inevitable death. One naturally believes that there are cases in which his diagnosis cannot be wrong. There are such cases, and the case here reported seemed one of them. I could not believe that my diagnosis was wrong in this instance. Is there not, therefore, in all cases — no matter how hopeless they may seem — some possibility of relief by surgical measures? These lines of thought lead one to the argument which has done more harm than good: "Without operation there is no hope, *ergo* operate." The difficulty lies in the definition of the hopeless case. There are, of course, cases in which the evidence is too strong to give the slightest support to an exploration,—for instance, cases of abdominal distention and masses secondary to cancer of the breast. But even in a case in which, after removal of cancer of the breast, the abdomen is filled with fluid and with solid masses, has one the right to assume that there is a metastasis from the breast? I think the chances of there being an ovarian tumor — a condition of things which surgery might remedy — are quite as good as in the case reported in this paper. There is certainly one chance in a hundred that a curable abdominal tumor may be coincident with a cured mammary cancer.

There are, of course, many cases in which even the most radical opinions do not permit an exploration. Take, for instance, a case of pylorectomy for cancer of the stomach in which, after two years of extraordinary improvement and a gain of a hundred pounds in weight there is a recurrence reaching to the scar of the abdominal wound, — in which the whole area is a mass of unmistakable cancer. In such a case the liveliest imagination does not suggest a possibility of cure, especially if microscopic examination of the presenting masses confirms the diagnosis.

Chylous ascites I have seen, and chylous mesenteric cysts. A case of the latter lesion I saw operated upon by Dr. Odlin of Melrose. In this case the cysts were so tense as to suggest the diagnosis of uterine fibroid. The sac was situated in the mesentery. Its walls, like the walls of this one, were fragile, and were unavoidably ruptured during enucleation. They were easily separated with the fingers.

In the case of chylous ascites the source of the fluid was evidently in the lacteals, for they were everywhere distinctly visible, distended with white fluid. The effusion was evidently caused by some obstruction to the lymph vessels.

I once removed a cyst from the left upper quadrant of the abdomen in a child,[1] a patient of Dr. Bowers of Clinton. This cyst was recalled to my mind by the one here described. It filled the abdomen; it was easily separated down to, and including its deepest attachments. It contained, however, a clear fluid. The situation of the tumor in close relation to the pancreas, with Dr. Whitney's report, led to its classification among the pancreatic tumors, and it was reported as a pancreatic cyst. The child has now grown to vigorous manhood, so Dr. Bowers reported to me recently.

The effect of a case like the present upon a conservative mind is, I think, to throw healthy doubt upon the infallibility of one's opinion, to give a strong hope in serious cases and a glimpse of encouragement in the apparently hopeless.

THE ACTIVE TREATMENT OF GONORRHEA IN ITS EARLY STAGES.

BY FREDERIC J. COTTON, M.D., BOSTON,
Assistant Surgeon, Boston City Hospital; Surgeon Genito-Urinary Department, Boston Dispensary.

THERE should be no need of argument in favor of the *active* treatment of gonorrhea. It is our duty to afford patients suffering with this disease the most efficient relief possible, and not to palliate symptoms in hope that the disease will run a self-limited course, leaving the patient, meanwhile, to the chance of complications and of chronic disorders. The writer believes thoroughly that gonorrhea is amenable to treatment, that all save the rarest cases may be entirely cured, that treatment should be active, and that it should be instituted as early as possible.

[1] BOSTON MEDICAL AND SURGICAL JOURNAL of March 21, 1895: "A Case of Pancreatic Cyst Treated by Drainage."

Much of the indifference shown in the treatment of gonorrhea arises from honest scepticism as to the results of treatment. In part this is, no doubt, due to the lack of agreement as to methods among those who should speak with authority. In part it is due to failures chargeable to faulty technique and misapplied methods. It is easy to lose sight of the necessity for judgment and care owing to the fact that unfortunate stress is often laid on the medicaments to be used, and little study given to the indications for their use or to their limitations. This has always been true and is even more obvious of late. No year goes by without the appearance of at least one new organic silver compound, each more silvery than the last, less irritating, more germicidal, each accompanied by optimistic assurances that simple injections of *this* preparation assure a rapid cure. One might suppose the whole problem solved with a prescription and a syringe.

There is no doubt of the value of some of these more modern preparations; intelligently used they render good service, but used as a routine treatment, relied on because they kill gonococci *in vitro*, they disappoint us as does any other fixed routine treatment.

There is no ideal treatment of urethritis, and the best methods and the best technique give somewhat variable results, but we have to-day a sufficiently accurate knowledge of the pathology of the disease to know what we wish to accomplish, and means and methods which, properly applied, will realize our aims with very fair success.

In this paper, the writer wishes to outline a scheme of treatment, followed for some years, which is the only one that has, in his hands, yielded any large proportion of satisfactory results — satisfactory both in time required and in freedom from complications. It has, at the same time, given results even in the least favorable cases as good as the average attained by other means.

The scheme may be summed up as a combination of modern irrigation methods with the still more modern germicidal treatment which has definite advantages over either used alone. This is nothing radically new, but a combination resulting from much experimenting with various much-advocated schemes; it was first suggested by a consideration of what we know of the pathology and the repair processes of gonorrhea, being an attempt to accomplish what seems reasonably possible in influencing these processes; the exact methods are, of course, those which best withstood the trying-out on a long series of cases experimented on.

It may be well to take up the matter by considering what is known that is of possible value to us, of the pathology of the disease and the course of cure under natural conditions in uncomplicated cases. Gonorrhea is the result of the introduction of gonococci within the urethra. At first it is confined to the fossa navicularis and its neighborhood, the gonococci multiplying on the surface of the epithelium over a constantly increasing area. At this stage there are no symptoms. There is some excess of mucus and some increase of the normal desquamation of epithelium. Smears show the gonococci already numerous, but lying on the surface of epithelial cells and in no relation to the scattered leucocytes. Presently pus formation begins; the gonococci having grown down through the loosened epithelium begin to produce results. They are now to be found within the leucocytes as well as on the epithelium; phagocytic action has begun. By this time, or even before pus or definite symptoms appear, the gonococci have already penetrated some distance. According to the best data available,[1] three days suffice for the bacteria to penetrate the full depth of the mucous membrane, especially in the protected follicles. Meanwhile the area involved increases and within a week most of the pendulous portion is contributing its share to the abundant discharge, and the urethral walls have become infiltrated, swollen and relatively rigid, so that even the stream of urine does not suffice to distend them and to cleanse their folds.

After a time, usually three or four weeks, the stage of defervescence is begun. Gonococci become less numerous, the infiltration of the walls gradually lessens, and finally most or all of the gonococci are carried to the surface by the phagocytic cells. The discharge meanwhile decreases till it is represented only by shreds in which pus is more and more replaced by epithelial cells thrown off in the active regenerative process. In favorable cases this process progresses until soon the urethra is normal save for some congestion and a continued overformation of epithelium in shreds.

In this process of repair the phagocytes play an important part, but it is very doubtful if phagocytosis is the whole story. If it were we should have more recurrences, for often gonococci persist in the urethra when there is next to no pus production, while their virulence is attested by the severity of such recurrences as do occur. The theory of protection against reinfection by the new-formed epithelium seems inadequate. There must be some form of serum protection developed in the course of the disease. As yet, however, we know nothing definite about it. What we do know is that after a time the multiplication of gonococci in the depths of the mucous membrane fails to keep pace with their elimination by phagocytic action or otherwise, and they disappear or again become superficial in their distribution.

The early penetration of gonococci into the tissues has been long known and used as an argument. It is quite true that after twenty-four to forty-eight hours it is very improbable that any germicide can reach *all* the gonococci; and the "penetrating" action of the various germicides is doubtful, despite all we hear, and apparently is not established by any data as to their penetration into living tissue. But it does

[1] Finger: Ghon. & Schlagenhaufer. Archiv. f. Dermatologie u. Syph., 1894, xxviii, pp. 316.

not follow that germicides are useless. If the bacteria that are accessible can be killed, we shall, at least, have hindered the spread of infection to some extent, and it is at least possible that elimination of gonococci from the deeper layers may be furthered by other means while we depend on germicides for their actual destruction at the surface. Reasoning from analogy with other infections of mucous membranes, it seems not impossible to exert through treatment some effect on this elimination of the deeper infection and on the infiltration and suppuration which accompany it. Later in the disease it is obvious that the mechanical emptying of the crypts may at least render lurking gonococci accessible to germicides, and in the earlier stages this, and I believe much more, may be done toward the clearing out of the cocci.

The lesson of pathology is not that germicides are useless, but that germicidal treatment *alone* will not suffice; that after two days or so we already have an established inflammation to deal with — an infectious disease and not simply a superficial infection.

In the first stage, therefore, we have an infection possibly amenable to germicides alone.

In the second stage we have to deal with a deep infection and infiltration. Our problem is to promote elimination of the infecting gonococci, to destroy such as may be reached, and to do all we can to prevent the involvement of fresh areas (up and backward) in the process.

In the third stage we still have to deal with both elimination and destruction, but the elimination must be a dislodgment of bacteria from follicles and crypts, rather than from the deep layers throughout the walls.

In the final stage we have, in properly treated cases at least, only a mild muco-purulent discharge to cure, a catarrh without gonococci.

To accomplish these things as here outlined in the various stages seems *a priori* practicable, no other scheme of treatment does seem promising. More than this, our knowledge of the pathology does not tell us as yet. We must try to accomplish these ends in such fashion as we can, relying on our own and others' experience of the action of the enormous number of medicaments and methods that have been tried. For our present purpose the writer will consider only those with which he has had some personal experience.

For several years the writer has been working on the large material of the Genito-Urinary Clinic at the Boston Dispensary and in office work, in the endeavor safely to attain reasonably rapid results in gonorrheal cases, and during this experimenting has tried most of the recommended chemicals according to many methods. The beginning goes back to a time when the methods mainly in vogue in this vicinity were two — Finger's plan [2] of *laissez faire*, followed after the acme by astringent and irritant irrigations to promote chemotaxis; and a method of permanganate irrigation, supposed to be Janet's, which it was not. Very strong (1% or 2%) silver was then just being abandoned, and for excellent reasons. Corrosive sublimate and weak silver nitrate injections had some vogue for a few years, but as a single routine treatment have proved unsatisfactory and are little used in this way to-day.

Essentially astringent injections, of which sulphate of zinc is a type, are the active ingredient in many of the old formulæ; a few years ago they were much used as a routine, now we know that they do excellent work in later stages, but they are much less used in early acute cases.

Later came the vogue of the non-irritant solutions of silver, argentamin, argonin — argonin L —itrol, orthophosphate of silver, ichthargin, albargin, largin, nargol, protargol, argyrol, picratol, and a number of others. The later of these are still the vogue. Like the rest they have their place, but that place is not as a sole treatment of an acutely infected urethra. The writer has worked with several of these preparations, beginning with Dr. G. W. Allen in 1898 with argonin applied to a test series of acute first attacks, with fair results.[3] To-day protargol and argyrol are in the field. In the writer's opinion they are better than their predecessors and of great value, but valuable only when used with a knowledge of their limitations.

Other recent preparations, acetozone, picric acid, mercurol, etc., have had their trial and gone their way without apparently winning a permanent place. The only medicaments in the whole list which have kept their repute may be said to be:

I. Bland injections: Potassium permanganate.
II. Germicides: weak silver nitrate, protargol, argyrol.
III. Irritant and germicide; Corrosive sublimate, silver nitrate in stronger solution.
IV. Astringent: Zinc sulphate.

This, even brought to these lowest terms, is a considerable list. The question is, What can be accomplished clinically with each or all of these? First as to very early cases — those possibly fully accessible to germicides. In these cases abortion is a possibility. It may *sometimes* be accomplished by any of the germicides, stronger nitrate solutions, corrosive, or even the organic silver combinations. But this is practicable only in those cases where gonococci are found present in the urethra very early after exposure, before the starting of discharge or definite symptoms. Such opportunities are rare. The patient usually comes to the surgeon when and because he has symptoms, and at this stage actual abortion is possible, so far as the writer knows, only by using very strong nitrate solutions, and then only in so small a proportion of cases that the risk of using this injection as a routine is not justified. Weaker germicides are powerless to accomplish this result. There is, however, no reason against a germicidal treatment to diminish infection with the hope not of abortion but of rapid cure, and

[2] Advocated by him in the nineties, not his recent routine.

[3] At the time so many impossibly rosy conclusions were being advanced that we decided to withhold our results. They have never been published.

it is with this end in view that the organic silver salts have mainly been used as sole treatment. The writer has so treated many cases and has seen a good many that have been so treated by others, but cannot heartily commend the results of this routine used alone. In weaker solutions the germicidal action is slight; in stronger solutions there is a germicidal effect, but not all gonococci are killed out, and meanwhile the symptoms of disease do not subside satisfactorily. Often, especially with protargol, if strong enough percentages are used to act as real germicides, the effect is irritant, compelling a change of treatment.

Picratol seems to act better as a germicide in weak solution than either argyrol or protargol, so far as the writer's limited trial of it shows.

On the average, however, none of these germicides alone has given first-rate results in cases where the discharge was already established. Early posterior infections seem unduly common, and persistence of urethral infiltration (even when the discharge is decreased) and recurrence on cessation of treatment have been too frequent. These agents do not, alone, kill out the infection, and there are better methods of mitigating symptoms.

For the lessening of symptoms *per se*, that is, the relief of ardor and of discharge, and for the lessening of infiltration, the most satisfactory method is that of frequent, profuse, hot, bland irrigations. In practice this means permanganate injections, though it is very probable that the specific action of the permanganate is slight. Janet, who has so strongly commended permanganate in treatment, claims a peculiar resultant edema which gives, he tells us, a soil unfavorable to gonococcus growth, but there are apparently no data to show whether this is due to permanganate as such or merely to the effect of prolonged and hot irrigation. The latter view would seem to be indicated by the apparently equal results of strong or weak permanganate solutions, and especially by the results of hot water irrigation,[4] and the considerable series of cases reported by Woodruff[5] with excellent results from very frequent hot irrigations of deci-normal salt solution. The mechanical washing is certainly useful. The oft-repeated stretching and collapse of a proper irrigation give an excellent emptying out of folds and of follicles, and the prolonged contact of fluid at high temperature may have much value. As to any germicidal or other special effect of permanganate the writer is inclined to doubt its importance.

Whatever be the exact explanation, the net result of these permanganate injections, clinically, is marked relief of subjective symptoms, diminution of the discharge to a minimum, a lessened infiltration of the urethra, and, if the technique be satisfactory, a checking of the backward spread of the infection. The gonococci diminish in number or disappear from the discharge, and in time we get cures in a large proportion of cases. No other method approaches this in relieving symptoms, and if these irrigations can be skillfully given twice, or even once a day, the patient is kept very comfortable, free from pain and nearly free from discharge. But rapid cures are not often obtained in this way. In the rule we get gonococci outlasting the symptoms they cause;[6] a cessation of treatment is followed by a return of pus and we must begin again and are apt to reach a cure only after a month or so. The method is an excellent one, but it is slow. Somewhat more satisfactory is the plan of switching over, when the urethra has become tolerant, to similar profuse irrigations of silver nitrate from $\frac{1}{8000}$ up to $\frac{1}{2000}$ The nitrate has a germicidal as well as an astringent effect. It cannot, however, be used until rather late; used early in any concentration that would be useful it gives rise to much irritation, except in tough and experienced urethræ where it may render excellent service from the start. Corrosive sublimate may be equally serviceable after the first stage but has no advantage. The astringents pure and simple often act well at this time, but have next to no antiseptic power. Used early they relieve symptoms somewhat, but that is all. Used later they serve all purposes save disinfection. After the process no longer depends on present infection they are, however, most in place and indispensable to the cleaning up of shreds in some cases that have lasted long.

The writer's method has been to combine the method of profuse irrigation with the use of germicides from the start and in this way to obtain combined results. The germicides may, in this way, be used in stronger solution than if used alone, owing to the lessened sensibility; owing to previous cleansing the solution comes in more direct contact with the epithelium, and since irrigations are done under an alternating pressure that helps empty the follicles even these lurking-places of infection are rendered more accessible. By using silver preparations in this way very fair germicidal results are obtained. At the same time the relief of symptoms is assured by the irrigations. On this basis and only on this basis has the writer attained satisfactory results.

Of course, the results are not uniform. In most cases where the disease is attacked early and the treatment fully carried out the disease is cut short as an anterior process and lasts only from ten days to three weeks and this without subjective symptoms and with a minimal discharge, often no more than a morning drop after the first day or two. Not all cases do this, and with cases where there is already a profuse discharge, whether with or without posterior involvement, the results, while very satisfactory as to reduction of symptoms, are not always so good as far as the cure of the infection is concerned.

[4] Kiss: Cbl. f. a. Krankh. der Harn- und Sexualorgane, xi Heft 7.

[5] Woodruff: Med. Record, 1901, lix, 401.

[6] Rarely we find gonococci present in enormous numbers at a time when the total discharge is a matter of a few drops only, and only partly purulent. These cases do not relapse quickly when treatment is omitted, but they do relapse. Whatever inhibition has been exerted on these gonococci is evidently only fleeting. More often the remaining gonococci are so few as to be overlooked, but the result is the same.

Some such cases do clean up very promptly, others show persistence of a few gonococci and tend to recur. Rarely there develops a posterior infection. In all cases, however, where posterior infections have appeared under this course of treatment they have been very mild and of very short duration as if the virulence of the gonococci had been lessened.

It has been the writer's habit when discharge has ceased and shreds are very few and gonococci have been apparently absent for some days, to cease treatment entirely for about four days to test results. In the cases where there is a return of gonococci and discharge a short course of the same treatment will usually clear up the process permanently. As a rule, however, by this time the urethra is become insensitive and tolerant, and silver nitrate injections are equally serviceable. Moreover, nitrate injections call for less frequent repetition and the treatment can thus be made less burdensome without being less efficient.

The practical detail of this method is about as follows:

(*a*) *In cases where treatment is begun at the first appearance of discharge.* Immediate gravity irrigation with permanganate of potash $\frac{1}{8000}$, as hot as can be borne comfortably, in large quantity, followed by syringe injection of 5% solution of protargol or argyrol held in for five or ten minutes. This procedure is repeated twice a day in the same way save that at the second or third injection the silver solution is pushed up to 10% and is held in fifteen or twenty minutes.

After three days the interval is lengthened, the routine is carried out but once a day.

At ten days to two weeks the process is usually apparently gone save for some shreds, and treatment is interrupted to test results.

(*b*) *Where there is already a discharge, ardor, and a stiff urethra.* Permanganate alone is usually used until conditions improve enough to give the protargol proper access to the urethra wall. Before this it is nearly useless and may be irritant. Usually the protargol can be profitably added to the treatment at the second or third treatment. These cases are not as a rule fit to test as to cure before two or three weeks.

(*c*) *Where there is already a posterior infection.* The treatment is the same except that about every fourth treatment a posterior irrigation with permanganate is added. This is usually sufficient and the writer has never become convinced of the utility of using silver proteids in the posterior urethra. These posterior cases, of course, last longer, and unless things look very encouraging it has often seemed unwise to attempt treatment even of the anterior process more than once a day.

In any of the cases if a discharge recurs after ceasing treatment to test results or in any case where the disease is not apparently about well within three weeks the writer has found it advantageous to substitute irrigations of silver nitrate $\frac{1}{8000}$ running up to $\frac{1}{2000}$ or $\frac{1}{1500}$, or occasionally corrosive sublimate $\frac{1}{15000}$ or $\frac{1}{10000}$.

In cases where there is a persistence of shreds after the infection has gone by zinc sulphate solutions running up to about 1% render excellent service.

Where early active treatment has kept discharge and infiltration down to a minimum there seems to be very little tendency to this persistence of shreds. Astringents are often unnecessary, and in the cases treated according to the above routine the writer has found the late use of the endoscope and the dilator entirely superfluous, which has not been his experience when using other methods.

As to the mechanical technique the writer would insist upon two points only; namely, that all irrigations be from the meatus without introduction of any instrument [7] and that the irrigations be carried out so that the anterior urethra shall be alternately well-distended and thoroughly collapsed. What form of nozzle and other apparatus is used is of secondary importance so long as it does the work and is familiar to the manipulator through much use.

Personally the writer uses a Rees nozzle [8] or a Kiefer, and latterly a glass double-current nozzle especially made for him which fits all forms of meatus as the Kiefer does not. With these is used an ordinary irrigator with a head of three feet for anterior and about five feet for posterior irrigation. Irrigations are done with the patient sitting or standing.

Posterior irrigations are done with the same nozzle in the meatus in the way advocated by Janet, by having the patient relax and try to urinate against a pressure of about five feet of water or rather of solution. Rarely this fails to work, and a catheter must be used for irrigation by Diday's method.

The case histories appended are not picked for good results, and as a whole may be classed as worse than the average that should be obtained, because they include cases that did not "tend up." They are chosen simply as giving a fair view of the course of various sorts of cases under this line of treatment.

ACUTE CASES SEEN EARLY. EARLY CURE.

CASE I. One previous infection several years ago; thoroughly cured. Exposure four days previous, seen on the first day that any discharge was noted.

1st day. Discharge already considerable and purulent. Many gonococci present intra- and extra-cellular. Permanganate irrigation, 1-8,000; 5% protargol.

2d day, A.M. No discharge — few shreds. Permanganate; 5% protargol. P.M. A drop of pus at meatus. Permanganate; 5% protargol.

3d day, A.M. No discharge. Permanganate; 10% protargol. P.M. Same.

4th day. Minimal discharge. No gonococci to be found. Permanganate and 10% protargol only once a day.

5th day. No discharge, same routine.

6th day. Same.

8th day. Same. No treatment yesterday.

[7] Irrigation with a catheter gives no advantage, and does certainly subject the inflamed urethea to needless trauma. Moreover, the writer has rarely been able to produce as satisfactory dilatation and emptying with the catheter in the canal.

[8] Similar to the Valentine — preferred only because lighter and handier.

10th day. No discharge. Shreds minimal. Changed to irrigations with hot corrosive sublimate, 1-15,000.

14th day. No treatment for four days. No discharge, almost no shreds; corrosive, 1-10,000.

17th day. Same.

20th day. No discharge, one shred only, showing microscopically nothing but epithelium. Urethra calibrated for possible (old) stricture, and prostate examined. Corrosive, 1-10,000. Discharged.

The patient reported some weeks later, no recurrence, entirely well.

Case II. Seven previous attacks. Last one under my care, entirely cured after about seven weeks, by permanganate irrigations, etc. Exposed three days ago. Now shows meatus puffy, with a drop of pus. Many gonococci, intracellular. Some epithelium with the pus.

1st day. Potassium permanganate, 1-6,000; 7% protargol, held in fifteen minutes.

2d day, A.M. Drop of discharge. Permanganate; protargol, 7%, ten minutes. P.M. Same, protargol, 7%.

3d day, A.M. Same. Permanganate. Protargol, 5%. P.M. Same.

4th day, A.M. Almost no discharge. No gonococci to be found. Permanganate, 1-6,000; protargol, 7%. P.M. Same.

5th day, A.M. No discharge at all. Permanganate, protargol, 7%. P.M. Permanganate, no protargol.

6th day. A drop of watery discharge in morning. Only moderate number of shreds. Permanganate and 5% protargol, once a day only.

From this point on, daily permanganate, protargol omitted; with this omission the watery discharge ceased. On the tenth day the few shreds showed hardly anything but epithelium, and silver nitrate and corrosive irrigations were used. At sixteen days treatment was interrupted to test. There was no recurrence, and on the twenty-fifth day, a week after the last treatment, the urethral caliber, and the prostate were overhauled.

This patient reported eight days later, entirely well, without any shreds on examination. He has remained well for two years.

Case III. One previous attack a year ago under my care; thoroughly cured after six weeks of irrigations, without remaining shreds. Exposure four days ago.

1st day. Discharge first noted to-day. There is now a moderate purulent discharge containing a good deal of epithelium. Many gonococci on epithelial cells, few in leucocytes. Permanganate, 1-6,000; protargol, 5%.

2d day, A.M. No discharge; few shreds. Permanganate. Protargol, 5%. P.M. A drop of pus. Permanganate, 1-8,000; protargol, 5%.

3d day, A.M. Few shreds. Permanganate; protargol, 10%. Infiltration gone. P.M. A little discharge; protargol, 10%.

4th day. No discharge. Shreds purulent, no gonococci found. Permanganate, 1-8,000. Protargol omitted.

5th day. Same. Permanganate once a day till tenth day. Meanwhile active exercise, some alcohol on ninth day.

10th day. No discharge. No symptoms. Shreds few and without gonococci, but with pus. Corrosive sublimate anterior irrigation, 1-15,000.

The sublimate injection was repeated (running up to 1-10,000) every three days till the twentieth day, there was then but one shred to be found, of epithelium only. Routine examination of urethra and prostate negative.

This patient was seen some weeks later. There had been no return of trouble and the urine was free from shreds.

ACUTE CASE SEEN EARLY; INFECTION CURED EARLY. LONGER "SHRED STAGE."

Case IV. One infection previous. Well for a year save occasionally few shreds.

1st day. Slight discharge appeared to-day. Incubation four days. Drop of pus only, but shows intra- and extra-cellular gonococci in fair number. Permanganate, 1-6,000; protargol, 5%, for ten minutes.

2d day, A.M. Same. P.M. Same.

3d day, A.M. Urethra dilatable without pain; no discharge except drop in morning. Same treatment, but 10% protargol.

This treatment continued twice a day until fifth day, permanganate, 1-6,000; protargol, 10%, held for ten to twenty minutes. There was no discharge after the second day, but persistent shreds containing gonococci up to the fifth day.

6th day. No discharge. A very few shreds without gonococci with a good proportion of epithelium. Urethra dilatable, insensitive. At this time the patient left town and carried out his own injections of 10% protargol for a week.

14th day. Still shreds, but no discharge or symptoms and no gonococci in the shreds. Permanganate irrigation every other day for a week, then astringent irrigations every four days.

34th day. No discharge. One shred only, showing only mucus and epithelium. No gonococci. Discharged.

This patient was followed by telephone for several weeks; there was no recurrence, and an examination, a month later, showed a normal canal and normal urine

ACUTE CASE SEEN EARLY, PROGRESSED SATISFACTORILY FOR A TIME. RELAPSED FOR CAUSE, RETREATED. RELATIVELY EARLY CURE.

Case V. One previous infection, cured. Seen on the second day of discharge.

1st day. Profuse purulent discharge; very many gonococci. Permanganate, 5% protargol.

2d day. Discharge much less. Permanganate, 10% protargol.

3d day. Discharge entirely gone. Treatment repeated. This was repeated once daily until the eleventh day. There was a minimal discharge twice during this time. Then he absented himself for three days and returned with a discharge containing gonococci and with a mild posterior infection without symptoms.

Under routine permanganate and silver nitrate all this cleared up in thirteen days.

26th day. Very slight, thin discharge, shreds; no gonococci.

32d day. Discharge gone. Silver nitrate.

34th day. Last appearance for treatment; apparently cured, few epithelial shreds in first portion only.

This patient reported a few weeks later; had had no return. Urine examined showed one or two shreds only, of epithelial type.

ACUTE CASE SEEN EARLY, RELAPSED FOR CAUSE. LONG PERSISTANCE OF GONOCOCCI WITHOUT OBVIOUS CAUSE. EVENTUAL CURE.

Case VI. Two previous infections. The first with a gleet of some months, the second recovering promptly and without recurrence or persistent shreds.

1st day. Four days incubation, one day of symptoms. Discharge slight, containing much epithelium and some pus. Gonococci in fair number extra-and intra-cellular. Some infiltration of walls of urethra. Permanganate, 5% protargol, for four minutes.

2d day, A.M. Discharge gone; few shreds, no

gonococci. Permanganate, 3% protargol, five minutes. P.M. Same. Permanganate, 2% protargol, five minutes; urethra already fully dilatable.

3d day, A.M. Two or three shreds only. Permanganate and 3% protargol for five minutes. P.M. Same, but protargol, 1% only.

4th day. A.M. Few shreds only. No gonococci in them. Permanganate, 1-8,000, protargol, 2%, for four minutes. P.M. Same.

5th day. Same A.M. and P.M.

6th day. Same. Once a day only. Now no discharge. No symptoms, very few fine shreds.

Omitted treatment and indulged in alcohol. Pus and many gonococci reappeared. Permanganate and protargol again abolished discharge in six days. Gonococci disappeared after three days. Shreds persisted and treatment with permanganate and protargol was carried out for two weeks. Shreds persisted and irrigations of silver nitrate were substituted, but on ceasing treatment (after a long interval of minimal shreds without gonococci and of nearly pure epithelium) there was a recurrence of pus and gonococci on the thirty-second day, and nitrate treatment was resumed for ten days, then dropped. There were then only one or two epithelial shreds, and the usual calibration and prostate examination before discharge a week later, with indulgence in liquor and coitus left a clean urine. There had been no return of trouble for a year after he was discharged.

ACUTE CASES SEEN LATE. RAPID PERMANENT CURE.

CASE VII. Discharge of two weeks duration. No previous attack for many years. Has been under treatment for two weeks with methyl blue and with protargol bougies with no great improvement.

1st day. Moderate purulent discharge; gonococci. Permanganate, 1-5,000.

2d day. Discharge almost gone. Shreds moderate in number. Permanganate and 3% protargol. No gonococci.

3d day. No discharge at all. Permanganate only.

4th day. No discharge. Permanganate, protargol, 3%, held in eight minutes.

5th day. Same. Exploration revealed a stricture two inches from meatus about fifteen F. in caliber.

6th day. Same.

7th day. No discharge, few shreds. Silver nitrate, 1-4,000.

8th day. Same.

9th day. Same.

12th day. No treatment for three days. Some shreds, but only of pure epithelial type.

Reported at twenty-three days; only epithelial shreds.

At thirty-eight days a fresh discharge appeared two days after fresh exposure. Considerable pus; no gonococci; entirely gone after one treatment with permanganate and 10% protargol. A few shreds persisted until a week later, when the anterior stricture was cut, they then rapidly and permanantly disappeared. No recurrence, and no shreds when seen a year later.

CASE VIII. One infection fifteen years ago or more. Present infection of eight days' duration, treated only with santal oil.

1st day. Moderate discharge, rather thin; a good many typical gonococci. Irrigation with permanganate.

2d day. Discharge gone; shreds in fair amount. Permanganate, 5% protargol, for eight minutes.

3d day. Shreds rather few. Permanganate, protargol 10%, for ten minutes.

4th day. Shreds few. Permanganate, protargol, 10%, for five minutes. From fourth to ninth day he had to carry out treatment at home.

9th day. There are only a few shreds with no infiltration remaining. Anterior injection of 5% protargol.

11th day. No treatment for past two days. Few fine shreds only. Protargol, 5% every other day.

18th day. Nothing in urine, apparently well.

This patient reported some weeks later; there had been no recurrence of trouble; there were then no shreds in the urine.

CASE IX. One previous infection years ago. Seen two weeks after fresh discharge began.

1st day. Moderate purulent discharge, showing many gonococci. Daily permanganate irrigations and aceto-ozone for a week. No improvement.

7th day. No better. Permanganate, 5% protargol, for ten minutes.

He could come in only every other day at which times permanganate and 5% protargol for ten minutes were used.

17th day. No discharge; very few shreds.

This patient quit treatment at seventeen days, but reported a few weeks later. There had been no return and an examination of the urine showed no shreds at all.

ACUTE CASE, SEEN LATE, RELAPSE FOR CAUSE, RETREATED. RELATIVELY RAPID CURE.

CASE X. First infection. One week duration.

1st day. Profuse purulent discharge; gonococci present. A severe acute anterior infection. Permanganate irrigation every other day.

5th day. Discharge somewhat less. Permanganate irrigation daily, followed by 5% protargol.

9th day. Discharge has wholly disappeared. Daily irrigation, anterior, with silver nitrate, 1-5,000.

17th day. For some days only a few shreds in first urine. After indulgence in soda water without other cause, the discharge has recurred with slight posterior infection without symptoms. Gonococci again present. Silver nitrate continued as daily anterior irrigation, and every three days posterior injection as well.

28th day. Gonococci again gone.

29th day. No discharge, few shreds; no gonococci no sign of posterior infection.

Treatment continued every two or three days for twelve days with anterior injections of weak silver nitrate. In the meantime there was no discharge and only a small and diminishing number of shreds. The patient reported five days after omitting all treatment. There was no trace of shreds in the urine.

This is not a brilliant showing compared with some series published, but it is contended that it compares most favorably with what is actually accomplished. It may be repeated that these are not picked cases except in so far as notes on many cases were insufficient. The cases were of fresh urethritis with demonstrated gonococci and were in each case followed up long after to make sure of entire and permanent cure.[9] The way to make a more brilliant showing is to report cases earlier; when discharge has ceased most patients, unless warned strongly, pronounce themselves cured and omit treatment; moreover, it is fair to draw conclusions only from results obtained in fresh infections in urethræ not previously infected, or at least known to have been really cured of any

[9] A cure in the writer's notion means: (a) disappearance of all discharge; (b) disappearance of gonococci; (c) disappearance of "gluing" of the meatus; (d) disappearance, permanently, of practically all pus from the few remaining shreds; *epithelial* shreds are, of course, not pathological.

previous infection. The very frequent acute processes occurring in the course of quiet chronic gonorrhea often can be quickly cleaned up under any treatment, even with internal use of the balsams alone.

To sum up, the writer believes thoroughly that all cases of early acute gonorrhea except in the presence of some contra-indication (such as phimosis or acute folliculitis) do better under active irrigation which in itself much reduces the severity of the disease, and he believes that the "organic" silver preparations used not alone but in combination with profuse bland irrigations accomplish definite results by germicidal action.

By following out a routine based on this, varied to suit varying cases, we can effect a very rapid cure in a certain proportion of cases, a very considerable diminution of time of treatment required in the other cases, a very comfortable condition as to symptoms during the course of treatment and, by no means least, the most efficient limitation as yet possible of the area involved as well as of the duration, and hence the best chance for avoidance of complications and chronic processes.

GLYCOSURIA IN PREGNANCY.*

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Blot in 1856 found a physiological glycosuria in the urine of all women at the lying-in period, in all nursing women, and in a certain number of pregnant women. Sugar was present in amounts as high as 8 gr. per 1,000 cc. of urine. He did not state the kind of sugar found, and it was not until 1877 that Hofmeister demonstrated it to be lactose. Since that time many observers have noted the existence of glycosuria in this class of cases and have brought forward different theories to account for its presence. Brocard in 1898 found a temporary glycosuria in 60 out of 125 cases of pregnancy between the seventh and ninth months, the varieties of sugar being glucose and lactose. Marie des Bouvenes in 103 pregnant women out of 353 examinations found 109 positive glucose reactions, or about 40%. Commandeur and Porcher recently found glycosuria present in twenty cases just prior to delivery. Very frequently the proportion of sugar found was so small that ordinary methods of determination were not always delicate enough to demonstrate its presence.

Brocard thought the glycosuria due to a disturbance of general nutrition. Charrin, his co-worker, suggested that the excess of fat in the liver of pregnant women might explain this tendency. Commandeur and Porcher in a recent article upon the subject maintain that the uncertainty of the physiology of the breast has been the difficulty in determining the cause. They state that from the experiments of Paul Bert in 1884, which they have since confirmed, it has been definitely proven that glucose, which is made in the liver, is transformed in the breast into lactose. This process increases as lactation appears. When there is an excess of glucose in the liver or when the breast is not ready for action this excess of glucose is thrown into the blood and appears in the urine. Then there is a temporary glycosuria which may occur from various causes as fright, injuries, nervous conditions, creatinine and its bases febrile attacks, acute diseases, action of certain toxic substances, ingestion of saccharine foods, anesthetics, and others. Pathological glycosuria is due only to the condition known as diabetes mellitus. In this condition glucose is present in quantities from ½ to 10%. The urine is increased in quantity and possesses various properties which are recognized as being associated with that disease.

The relation of glycosuia to pregnancy is an interesting one and a number of cases of this condition have been collected. It has been possible to divide the cases into two classes:

(1) Showing a temporary glycosuria during some part of the pregnancy where no other symptoms existed, where the glycosuria was small in amount and varied but little; and

(2) Showing a glycosuria present where the amount was larger with a tendency to increase, and where other symptoms existed.

Through the courtesy of Dr. Geo. M. Craigin of Boston and Dr. Ingalls of Hartford, Conn., we are able to report three recent cases of glycosuria in pregnancy and we desire to express our thanks to them here.

(1) Case of Dr. George A. Craigin. Primipara; thirty; family history negative. Always well, robust physique, accustomed to considerable exercise and a hearty eater. Last catamenia May 8. Urine examination negative up to Dec. 29. Urine examination, Dec. 29, 1,036; alb., 0; sugar, faint trace. General condition, excellent; fetal heart, strong; 140.

Jan. 5. 1,036; alb., 0; sugar, .25%.

Jan. 10. 1,023; alb., 0; sugar, .42%; urea, 350 grains.

Was well save for slight indigestion. Walked several miles daily.

Jan. 20. 1,031; alb., 0; sugar, .42%.

Jan. 22. Put on rigid diet.

Jan. 28. Alb., 0; sugar, .22%.

Feb. 15. After difficult breech labor was delivered of an eight-pound girl. Patient has been well since delivery. At no time since delivery has sugar been discovered in the urine. The child died on the third day with convulsions. This death was probably due to the difficulty in delivery.

(2) Case of Dr. Ingalls. Primipara; thirty; seen when six months pregnant. Was suffering considerably from pruritus. Three per cent sugar was found in the urine. Labor was induced with catheter. Pruritus disappeared and urine was sugar free soon after uterus was emptied.

(3) Case of Dr. J. M. Jackson. Primipara; twenty-seven; last catamenia June, 1902. First seen by Dr. Jackson Dec. 31. Urine was said to have been examined prior to this time and no sugar was found.

Dec. 31. Urine examined: Twenty-four degrees, amount 1,500 cc.; 1,028; alb., 0; sugar, 4%; urea, 24 gms. No acetone or di-acetic acid.

* Read before the Obstetrical Society of Boston, Oct. 25, 1904.

Has been perfectly well during pregnancy except for slight nausea and vomiting during early months. Put on strict diabetic diet, and by the end of one month was sugar free. Feb. 25, 1903, urine examination showed no sugar.

Early in March had severe headache, but did not call her physician. March 12 complained of great fullness in the head and throbbing pains in the temples. When seen at this time pulse was very high, tension estimated at 250 mm. Hg.

Five grains of phenacetin relieved her condition and she slept until 10 P.M., when her membranes ruptured, and a large amount of liquor amnii escaped. Labor progressed slowly all night; at 12 noon, the next day, she began to tire; os was size of one dollar, easily dilatable and head was in the pelvis. Ether was given, the dilatation completed, and an easy, low forceps operation done. The placenta was adherent and had to be removed manually; no hemorrhage, and the uterus contracted well. Aseptic ergot given subcutaneously after the extraction of the placenta.

Patient began to come out of ether and pulse dropped from 140 to 120 and was of normal tension. One hour later her pulse suddenly increased in rate, became feeble and patient sank into a profound collapse. In spite of stimulation she became delirious and died in about one hour. The child was alive. The question would at once be raised of rupture of the lower uterine segment, but the interior of the uterus was carefully examined at the time the placenta was removed and no such condition existed. Shock of operation could be eliminated as she was under the ether but a few minutes and the delivery was not a difficult one. The heart had been examined several times previously and found normal. Certainly, there were no symptoms at any time pointing to any cardiac trouble.

(4) CASE REPORTED BY LEIPMAN. Seventh child; thirty; had excessive enlargement of the abdomen, swelling of the feet, dyspnea, sugar present in the urine in considerable quantity. The membranes were ruptured at this time and eleven pints of fluid escaped. Fifteen minutes later a large blood clot came away. An internal podalic version was done and child extracted. The patient suffered much from shock, and as the hemorrhage was extensive the uterus was packed. No sugar was discovered directly after delivery, but when the gauze packing was removed, sugar reappeared and patient died in coma. Autopsy showed a dissecting endometritis, the connecting tissue being necrotic while the uterine muscular fibres were intact.

As regards diabetes in pregnancy Duncan in 1882 first reported twenty-two pregnancies occurring in fifteen women between the ages of twenty-one and thirty-eight years. From these cases and their subsequent histories he concludes:

(1) Diabetes may come on during pregnancy.

(2) Diabetes may occur only during pregnancy, being absent at other times.

(3) Diabetes may cease at the termination of pregnancy, recurring later.

(4) Diabetes may come on soon after parturition.

(5) Diabetes may not return in a pregnancy occurring after its cure.

(6) Pregnancy may occur during diabetes.

(7) Pregnancy and parturition may be apparently unaffected in their healthy prognosis by diabetes.

(8) Pregnancy is liable to interruption, probably always by the death of the fetus.

In reviewing the literature one is struck by the infrequent occurrence of diabetes in pregnancy; also the fact that many of the reported cases were not discovered until near delivery or afterwards when the disease was far advanced. This last fact shows the importance of making systematic urine examinations in all of this class of cases.

Several reasons are given to account for the infrequent occurrence of diabetes as a complication of pregnancy among which are: That where diabetes occurs in women in two thirds of the cases the disease does not make its appearance until after the menopause. Diabetes occurring in young women causes, as a rule, suppression of menstruation and numerous lesions of the genital tract which tend to prevent conception. In case conception does occur miscarriages are frequent.

As regards prognosis Fry states that the unfavorable prognosis of diabetes is increased by the co-existence of pregnancy, mild cases assume acute forms and acute rapidly terminate. The authors have collected from the literature eighteen pregnancies occurring in eight women who had a mild glycosuria present at some time during the pregnancy. The glycosuria showed little tendency to increase and was accompanied by no further symptoms. All of these eighteen went to delivery at term, there was no difficulty with the labor and convalescences were normal. No sugar was present in subsequent examination.

Where diabetes existed as a complication of pregnancy there were thirty-six pregnancies occurring in twenty-five women. Of these twenty-five women, sixteen or 45% died either at delivery or within a short time, of diabetes or some complication. Twenty or 55% of the infants were stillborn or died within a few hours. In seven of the cases who recovered after the first pregnancy diabetic symptoms recurred at the second pregnancy and three died at delivery. In four others diabetic symptoms reappeared in the second and third pregnancies, and three of this four died at the third delivery. In the fourth diabetic symptoms persisted after delivery. With reference to the effect on the fetus abnormal births were either miscarriages — which occurred most commonly at the third, fifth and seventh months — stillborn or macerated. Excessive size of the child and hydramnios were noted in several cases. Malformations occasionally occurred among which were spina bifida, hare lip, cleft palate, double hydrocele. Thus it is seen that diabetes frequently exerts a pernicious influence upon the product of conception.

As regards the effect of anesthesia, Naunyn states that coma and death are not infrequent, and in all cases narcosis was to blame. He states that there is always a large increase of sugar after operation, the amount ranging from nothing to 7%. He reports a case of ten minutes' narcosis followed in six hours by coma and death

within forty-eight hours. The cause of the coma is not known.

Noble has collected sixty-nine cases of operations upon diabetics for various surgical affections; all of these took the anesthetic well; an occasional exacerbation of sugar was noted, but in no case did death occur which could be directly attributed to the anesthetic. Pavy states that anesthesia of diabetics is unsafe if much sugar is present; he advises strict diet, the choice of an anesthetic to lessen the chance of excessive post-operative vomiting, and to make the anesthesia as short as possible.

Partridge states that fatal coma or collapse has been observed to follow unusual bodily or mental strain in diabetics. Labor is a great strain, and this complication unquestionably increases the risk of operation. Sudden death and coma occurred in two of the reported cases, and of eight cases seen in the literature four died shortly after operation. From these cases it would seem best to avoid the use of anesthetics as far as possible.

As regards blood pressure there is nothing especial of note, except cases showing arterio-sclerosis as a result of diabetes; these cases show a slightly increased blood pressure. Mention should be made of the fact that a high blood pressure always precedes coma.

In conclusion we would call attention to the importance of a systematic examination of the urine of all pregnant women. A low specific gravity does not prevent sugar being present; with a low specific gravity and low solids sugar is frequently met with in the urine.

A temporary glycosuria frequently exists during the later months of pregnancy; this may be due to either glucose or lactose, and the recent work of Commandeur and Porchet have demonstrated the fact that this is surely physiological and that these cases go on to the termination of pregnancy without interruption. Undoubtedly many cases of this class have been reported as cases of diabetes in pregnancy.

Where a glycosuria exists due to glucose, and where the amount of suagr is variable, and where other symptoms of diabetes exist, when diacetic acid or acetone appear in the urine, the interruption of pregnancy is advised for the possible benefit to the mother.

On account of liability of sudden collapse the use of anesthetics should be avoided as far as possible.

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I. K. I. METHOD OF STERILIZING CATGUT.

BY F. W. JOHNSON, M.D., BOSTON.

Having employed the I. K. I. method of sterilizing catgut for over a year, and having had during that time no wound break down, and only one stitch-hole abscess, I wish to give my experience in its preparation and use.

In *every* instance brought to my notice where this method has been criticized I have found the user and not the method at fault. Like every other method, it must be done exactly right, or it will not do what is claimed for it. One physician allowed his nurse to make the solution, and had nothing but trouble with the gut that had been soaked in it. Another had the solution put up by a second-rate pharmacist, with the experience of the one above mentioned. Another simply coiled the gut, and found fault because it had lost its strength.

First of all, get clean, strong gut. This is essential whatever method of sterilization you intend to employ.

At the present time, clean, strong gut of uniform size can be obtained. The gut I have used for years is almost white, has no odor, and is free from fat. It is made in Germany, but where my supply agent gets it, I do not know.

Before sterilization, no matter what process is employed, each strand of gut should be thoroughly stretched. In the I. K. I. method of sterilization, the gut should be wound on wide reels if possible, and too much gut must not be put on any one reel. In other words, the solution should find easy access to the deeper layers of gut. The gut *must* be wound on some form of spool or reel, else the method will prove a failure. Gut, being strands of some kind of intestine twisted into a fine cord, allowed to dry, and then polished, will untwist and thus lose its strength if put in any watery solution, unless it is wound on a spool or reel.

Before using, the gut should be swashed through sterile water — not allowed to soak in it. The reel or spool can then be placed on a sterile sponge or gauze, and when the operation is finished, dropped back into the common jar, to be used at the next operation.

The advantages of this method are the absolute certainty of a sterile gut, ease of preparation, healing by first intention and an animal suture material that will not slip and that will tie like silk.

The solution is: iodine, one part; iodide of

potassium, sufficient quantity to saturate, and distilled water sufficient to make one hundred parts.

Large sized gut is sterilized to its very center. Gut sealed in tubes in the I. K. I. solution, and kept from the light, will get friable in about three months.

I. K. I. gut should not be used in plastic work in the vagina, as iodine there irritates the mucous membrane, making it an excellent culture medium for micro-organisms. Reels made of aluminum are dissolved by this solution, and they turn it white. After extensive experimenting, reels made of papier maché were found to give excellent results. They can be made of the desired size and notched, so that the size wanted can be seen before removal from the I. K. I. solution.

THE STERILIZATION OF CATGUT, BY CLAUDIUS' IODINE [1] METHOD.

Martina has subjected this method to a careful series of tests, and reports very favorably on it.

"The preparation of the catgut is very simple, consisting of the immersion of the gut, as it comes from the maker, in an iodine solution for eight days, at the end of which time it is ready for use. The iodine solution in which the gut is sterilized and kept, is made as follows:

"One part of potassium iodide is dissolved in a little distilled water, then one part of iodine is added and the solution made up to one hundred parts with distilled water.

"Claudius originated the method about a year ago, and has since published the opinions of a number of well-known surgeons, all of which

Pieces of Catgut Infected with S. p. aureus.	S. p. albus.		Strepto-coccus.		Anthrax.		Anthrax Spores.		Anthrax Spores.		"Clam" Bacillus Twine.		"Clam" Bacillus Catgut.		Bacillus from Egg.		Bacillus from Egg.		"Clam" Bacillus.		"Clam" Bacillus.	
Placed in Iodine Solution for	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.
1	15 m.	—	12 h.	—	10 h.	—	12 h.	—	30 s.	+	45 m.	—	4 m.	+	10 m.	+	6 m.	+	20 m.	+	20 m.	+	30 m.	+
2	30 m.	—	22 h.	—	2 d.	—	22 h.	—	2 m.	+	80 m.	—	6 m.	+	13 m.	+	11 m.	+	30 m.	+	31 m.	+	60 m.	+
3	30 m.	—	3 d.	—	4 d.	—	3 d.	—	3 m.	+	3 h.	—	9 m.	+	18 m.	+	15 m.	+	47 m.	+	40 m.	+	1½ h.	+
4	24 h.	—	5 d.	—	6 d.	—	5 d.	—	5 m.	+	6 h. 50 m.	—	12 m.	+	25 m.	+	21 m.	+	57 m.	+	51 m.	+	2½ h.	+
5	48 h.	—	7 d.	—	8 d.	—	7 d.	—	9 m.	+	10 h. 25 m.	—	15 m.	+	35 m.	+	26 m.	+	65 m.	+	60 m.	+		
6	3 d.	—	9 d.	—	10 d.	—	9 d.	—	11 m.	+	22 h.	—	20 m.	+	42 m.	+	32 m.	+			70 m.	+		
7	5 d.	—	11 d.	—			11 d.	—	15 m.	+	27 h.	—			65 m.	—	40 m.	+			80 m.	+		
8	7 d.	—							20 m.	+					80 m.	—						
9	9 d.	—							16½ h.	—												
10	11 d.	—																				
	Oct. 6-17		Oct. 8-19		Oct. 9-19		Oct. 8-19		Oct. 24-25		Oct. 26-27		Dec. 9		Dec. 9		Dec. 11		Dec. 18		Dec. 18		Jan. 1, '04

Catgut Bacillus.	Catgut Bacillus.		Catgut Bacillus.		Catgut Bacillus.		Catgut Bacillus.		Catgut Bacillus.		Unsterilized Catgut.		Catgut Bacillus.		Catgut Bacillus.		Catgut Bacillus.		Catgut Bacillus.	
Time in I. K. I.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.	Time in I. K. I.	Result.
1 20 m.	4 h. 25 m.	+	2½ h.	+	½ h.	+	½ h.	+	1 h.	+	3 h.	—	3 h.	—	2 h.	+	3 h. 5 m.	+	4 h.	+
2 40 m.	4 h. 55 m.	+	2½ h.	+	1 h.	+	1 h.	+	3 h.	+	4½ h.	—	3½ h.	—	3 h. 5 m.	+	3 h. 35 m.	+	4 h. 30 m.	+
3 55 m.	5 h. 25 m.	+	3 h.	+	1½ h.	+	1½ h.	+	4 h. 40 m.	—	6½ h.	—	4 h.	—	3 h. 35 m.	+	4 h. 10 m.	+	5 h.	+
4 65 m.	5 h. 55 m.	—	3½ h.	+	2 h.	+	2 h.	+	5 h. 5 m.	—	7½ h.	—	5 h.	—	4 h.	+	4 h. 35 m.	+	5 h. 20 m.	+
5 85 m.			3½ h.	+	3 h.	+	3 h.	+	5 h. 30 m.	—			5½ h.	—	4 h. 35 m.	+	5 h.	+	5 h. 30 m.	+
6			4 h.	+	4 h.	+	4 h.	+	5 h. 45 m.	—			6 h.	—	5 h.	+	5 h. 30 m.	+	6 h.	+
7			4½ h.	+	5 h.	+	5 h.	+	6 h.	—			6½ h.	—	5 h. 30 m.	+	6 h.	+		
8			5 h.	+	6 h.	+	5½ h.	+					7 h.	—	7 h. 15 m.	+	6 h. 30 m.	+		
9			6½ h.	+	48 h.	—	6 h.	+												
10			24 h.	—																
Jan. 1	Jan. 4		Jan. 6-7		Jan. 20-22		Jan. 22		Jan. 29 Sugar-free bouillon		Feb. 17		March 2		March 4		March 11		March 18	

[1] Medical Record, Vol. xliv, 1903, p. 976.

were favorable. Martina has investigated the product obtained from all points of view, and he praises it highly. An elaborate series of cultures, made under many different conditions, showed the absolute sterility of the gut, and also that the iodine retained makes it markedly antiseptic, without, however, being sufficient in amount either to produce local irritation of the tissues, or involve any risk of iodine poisoning. Comparative tests showed that catgut possesses about one seventh greater tensile strength than the raw material, though it gradually loses this property unless the iodine in the solution be kept to full strength. The method, therefore, offers an extremely simple and inexpensive means of preparing gut, which can be easily preserved in a sterile condition, and is not only aseptic, but antiseptic."

The following is the report of Dr. Calvin G. Page, assistant in bacteriology, Harvard Medical School. His investigations began in October, 1903, and extended into May, 1904.

On Oct. 2, 1903, I gave him a bottle of iodine solution and some raw catgut, requesting him to infect the gut with staphylococcus pyogenes aureus, staphylococcus albus, streptococcus pyogenes, and bacillus anthracis, and place the infected gut in the iodine solution, removing pieces at intervals up to ten days. Some of the gut, cut in pieces about one inch long, was put in bouillon cultures of the organisms suggested, for three days, and then the bouillon was replaced by the iodine solution. At intervals, one piece of gut was transferred to bouillon, and incubated for several days. The intervals and results are given in the table. I. K. I. is the symbol for the solution. If there was no growth, showing that the iodine had killed the bacteria, the result is indicated by the minus sign, —. If the bacteria grew, showing that the iodine was not effective in the time given, the result is indicated by the plus sign, +. Control tests were made to show that the gut was thoroughly infected. Other controls and microscopic preparations were made as needed to insure the accuracy of the results.

"Adding to bouillon in a tube half its volume of the iodine solution causes a precipitate. If the bouillon contains a growth, it will be carried down with the precipitate and killed. As the result showed that anthrax bacilli would be killed within twenty minutes, no further tests were made with the pus cocci, as they are known to be much less resistant than anthrax. Trials were made with bacilli much more resistant than anthrax. The "Clam" bacillus, from the laboratory of the Massachusetts Institute of Technology, has spores that resist boiling for several hours. The "catgut" bacillus has been found frequently as the sole contamination of commercial "sterilized catgut." It is very resistant to heat. The time required in the iodine solution to kill the spores varied from three to seven hours. This bacillus will grow profusely at 60° C., and also at 37° C., but there is only a slight growth at room temperature. It produces a red pigment in certain media, and has other peculiar properties. Probably it is not pathogenic, but further tests on animals are to be made."

Dr. Page gives the result of Dr. A. Martina's experiments with the Claudius method of sterilizing catgut.[2] A review of this article appeared in the New York *Medical Record* for Dec. 19, 1903, p. 976. (Quoted above).

The following are some of the points considered in this article:

"A watery solution of iodine is a stronger antiseptic than a concentrated alcoholic solution. This method insures the absolute sterility of catgut (eight days in the I. K. I.). Experiments to see if catgut thus treated has antiseptic action showed that growth of staphylococcus along a piece of gut was delayed two or three days. The catgut gradually became decolorized and its antiseptic power lost."

"Experiments with animals, to see if iodized gut is antiseptic against pus and artificial infections with bacteria, yielded inconclusive results, because of the many biological factors.

"Catgut prepared by different methods was held in unwashed hands, then cut and put in bouillon. Only the iodized gut gave no growth. The same result followed when hands were scrubbed fifteen minutes with soap and water, followed by alcohol.

"The antiseptic action of iodine in catgut overcomes accidental infection of wounds. The amount of iodine is so small, and diffusion is so slow, that there is no chance for poisonous action. No adhesions were found in the abdominal cavity, after leaving a piece of coiled gut there. The strength of the catgut is increased by this method (eight days' immersion).

"Resorption in tissues occurs in six or seven days, as shown by experiments and hospital cases."

Clinical Department.

ANOTHER CASE OF TYPHOID FEVER SIMULATING PUERPERAL SEPSIS.*

BY H. T. SWAIN, M.D., BOSTON.

SOME months ago I reported three cases of typhoid fever simulating puerperal sepsis, and as these cases aroused interesting discussion in this society, I thought I would add another marked case that I have seen.

MRS. —— was delivered by an externe of the Boston Lying-In Hospital. It was a normal labor, but the patient had a temperature of 101.2° and a pulse of 96 at the time of delivery. The temperature did not go down and there was a little tenderness low in the pelvis. Both of these conditions we thought due to an active gonorrheal infection from which she was having a free discharge at the time of labor. There were no general symptoms and she did not seem sick. On the sixth day the temperature went up to 103.5°, pulse to 110,

[2] Deutsche Zeitschrift für Chirurgie, 70 Band, 1–2 Heft, September, 1903, pp. 140 to 174.

* Read at the October meeting of the Obstetrical Society of Boston.

there was some abdominal distention and the lochia somewhat tainted. An intra-uterine douche of 1-10,000 bichloride solution was given and a few shreds washed away. There was no change in the condition the following day. The Widal reaction was negative and the white count 7,000. On the eighth day the lochial discharge was foul and a curette was then introduced and a small piece of decomposing placenta removed. The curettage was followed by a douche which came away quite clear. The case now seemed like one of pure sepsis and the patient was admitted to the Boston Lying-In Hospital, as she was too sick to remain at her home. She had at this time high fever, distention of the abdomen and a slight vaginal discharge. There were no other signs or symptoms. On the tenth day, she had a positive Widal and a white count of 4,000. Two days later she had a second positive Widal and a white count of 3,400. Other symptoms of typhoid fever developed later.

The case thus became one of typhoid fever developing in the puerperium. The foul piece of placenta was probably simply decomposing, but may have been mildly infected. Unfortunately, no cultures were taken, as it would have been interesting to know whether the typhoid bacillus was present.

I do not report this case as an unusual one, but simply to again call attention to the similarity of the conditions. Typhoid is no doubt very often overlooked to the detriment of the patient, for the treatment of a patient supposed to be septic would usually do harm to a typhoid. This is especially true with reference to the carthartics that are given to reduce distention. It is true also of the manipulation which is required to give frequent intra-uterine irrigation. Then, too, a patient recovering from sepsis is fed much more freely than a convalescent typhoid patient. Then, too, there is the danger to the community from an unrecognized typhoid.

In conclusion, I would urge the importance of eliminating typhoid by frequent white counts and clump reactions in all puerperal cases with pelvic or abdominal symptoms. It is necessary to remember in this connection that the white count is usually high at the time of labor gradually coming down to normal during the first week.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., Secretary.

Meeting of Oct. 25, 1904. The President, DR. J. B. SWIFT, in the chair.

DR. JAMES R. TORBERT, by invitation, read a paper entitled

GLYCOSURIA IN PREGNANCY.[1]

DR. ELLIOTT P. JOSLIN: Only two mild cases of this condition have come to my personal notice. The first was a primipara who went to full term, and was successfully confined. The case was interesting chiefly because the patient was in the habit of eating much sugar. The per cent of sugar in the urine varied between 0.1% and 0.7% during the last four months of pregnancy. Nine months after confinement the urine was free from sugar.

The second case was a IIpara of thirty who had had sugar present at her first pregnancy. In the second pregnancy 1.2% sugar was found at six months, and persisted until after she was confined. During this time the patient felt perfectly well. Three months later lactose was present, but no glucose. Both these cases were of the mild type and required no treatment, but were simply watched and the urine controlled from time to time.

The care taken to-day by obstetricians in watching the urine is so great that I am convinced that the next few years will show a vast improvement in the statistics of glycosuria in pregnancy. These cases are much like early cases of phthisis in that we can almost guarantee great improvement if they are taken in hand early, even when a large amount of sugar is present.

Much more is known now about the proper diet in these cases than a few years ago. Changes in diet should be made very gradually. It is rare that it is wise to get a patient sugar free in less than two weeks. A sudden change in diet increases the acids which are the direct cause of coma.

As to the question of anesthetics in diabetes I do not feel that they are any great danger if the patient is watched for some time before operation and gradual changes in diet made. A teaspoonful of sodium bicarbonate should be given several times a day for several days before operation, and a diet in which milk figures largely should be commenced so soon as the patient can take nourishment after the operation. Failure in such cases comes, as a rule, from neglect of these precautions.

DR. GEORGE A. CRAIGIN: It would be interesting if we had any means of telling in a given case of glycosuria in pregnancy whether it was of the mild type, needing no treatment, or a true diabetes. I should like to ask Dr. Joslin what would influence his judgment when first finding 1 or 2% of sugar.

DR. JOSLIN: I do not think there is any way of telling. All we can do is to watch the case. I should not modify the diet unless the glycosuria increases. One might, of course, make slight changes such as preventing the patient eating excessive amounts of candy for instance.

DR. J. G. BLAKE: At to the effect of ether I can remember very many operations on elderly diabetics, especially among the Jews, yet I can recall no case of sudden death following them.

DR. M. H. RICHARDSON: I have never considered that the anesthetic has any great influence on these cases. The question of their standing the shock of operation is a different matter.

DR. C. H. HARE: I recently removed a twenty-six pound cystoma in a diabetic who did perfectly well.

DR. C. E. STEDMAN: I am much interested in the case of cure Dr. Joslin has spoken of. I have under my care at present a case eleven years old in whom 8% sugar appeared three years ago. On a suitable diet she has been perfectly well ever since until quite recently when she has begun to fail. I should like to ask whether anyone else has known a case beginning so early and of so long duration.

DR. JOSLIN: Dr. Stedman's case shows that what usually brings on death early does not do so when proper care is observed.

DR. RICHARDSON: The question of operation in cases of diabetes is a very important one. We know by experience that operations in such cases are dangerous, and perhaps as a result we have gone to the other extreme. I should, however, operate only when operation is imperative. I have been so impressed

[1] See p. 159 of the JOURNAL.

by the danger of operation that I hesitated for a long time from operating for diabetic gangrene. If possible, I should not do any operation upon a diabetic until the glycosuria had been thoroughly treated. Whenever the function of the kidney is disturbed the case should be looked upon with suspicion. I have just lost a case from suppression of urine where a few casts were found before operation, but as the man was seventy years old they were regarded by his family physician as being merely what might be expected at his age.

Dr. Edward Reynolds: My experience with diabetes is very small and the few cases I have seen have been associated with surgery and not pregnancy. I have grown to feel that the chief danger comes from lack of resisting power.

Dr. J. G. Mumford: My experience has been that if we are forced to give an anesthetic to a diabetic we are apt to get into trouble unless we have first got the percentage of sugar well down. If that is done the dangers of poor healing are avoided.

Dr. E. H. Stevens: I have a patient who has gone through six pregnancies with sugar present in five. It remains for a month or so after confinement, and then disappears completely. I have attended her myself in two labors. The sugar must be merely an accidental thing as she always gets well. Each time I have put her on a partial diabetic diet.

Dr. J. B. Swift: I have had only one case of diabetes in pregnancy. The glycosuria was slight and temporary.

Dr. Torbert: Did Dr. Stevens's patient have any symptoms besides polypuria?

Dr. Stevens: Nothing but great thirst. She nursed her child.

Dr. M. H. Richardson reported a

CASE OF CHYLOUS CYST OF MESENTERY.[2]

Dr. H. T. Swain reported

ANOTHER CASE OF TYPHOID SIMULATING PUERPERAL SEPSIS.[3]

Dr. Richardson: I should like to bring up the question of operation upon pregnant women. I have recently operated for appendicitis upon two women who were pregnant, both of whom did well. Acute attacks complicating pregnancy are very fatal. I saw to-day a case operated upon a year ago for dermoid. She is now four months pregnant presumably, and has a very large tumor of the abdomen, probably a multilocular dermoid. The cervix can hardly be reached. All the symptoms of pregnancy are present, yet I confess that I cannot really say whether she is pregnant or not. In such cases the operation is apt to be very difficult, yet my experience is that we can operate almost with impunity as far as interrupting the pregnancy is concerned.

Dr. Reynolds: As regards appendicitis, I have a clear conviction that what brings about miscarriage after operation is a mild infection and not the operation itself. The cases that I have seen have been so fatal that I should have no hesitation to operate, and operation should be done early, before the uterus is large enough to be in the way.

As regards tumors complicating pregnancy, I think I have had ten fibroids and five ovarian cysts. With the changes in density of tumors due to the increased pressure resulting from the enlarging uterus it is often quite impossible to tell fibroids from ovarian tumors. I think there is no such thing as a fibroid that may not disappear with labor, or rather that may not be drawn up so that a natural or easy forceps delivery will be possible. Of course there is some risk of sloughing after labor, but I do not think that risk is as great as the risk of operating in advanced pregnancy. In a tumor that was evidently going to obstruct, I would do an abortion if the fetus were small enough to pass the tumor. If too large, I would wait till term and then operate. When labor comes it is easy enough to tell whether a given tumor is a fibroid or ovarian. If a fibroid it begins to change its shape as soon as the pains become strong, and soon even when previously the tumor apparently blocked the pelvis it becomes possible to insinuate a finger between it and the pelvic wall. As I have said all my cases went on to natural delivery or easy forceps. In all of my ovarian cases but two after the uterus and its ligaments had been stretched it was possible to shove the tumor up above the descending head by taxis in the knee-chest position. In one case where the tumor was fixed a cesarian section became necessary. The other case, after being tapped by a quack, became pregnant and the tumor returned with much dyspnea at term. I removed the large child by cesarian section, together with the twenty-five pound tumor.

In early pregnancy get rid of the pregnancy. Later, wait for term or absolutely urgent symptoms. Nature will generally get you out of the difficulty. There is equal or a little greater safety to the mother in operating at term as then at the same time you get rid of the pregnancy.

Dr. Stevens: Two weeks ago I saw a case who, with a history of four months amenorrhœa, presented a tumor rising above the umbilicus, while the pelvis was filled by a boggy mass with the cervix high up behind the pubes. Her attending physician had been catheterizing her for four days. The woman was very sick and having chills. At the hospital next morning, I opened the abdomen. A tumor presented from which a trocar evacated four quarts of foul urine. I then found a pregnancy of some five months. Behind the uterus was a mass apparently continuous with it. On lifting the uterus up this mass disappeared, leaving an ordinary pregnant uterus. The patient made a good recovery. I blame myself for not passing a catheter before operation, but knowing that she had been catheterized for four days, I supposed the bladder was empty.

Dr. Swain: I remember a case of tumor filling the vagina. It was in a case of transverse position at term. The cervix could not be reached by the fingers even under ether while this boggy tumor feeling like a cyst filled the vagina. A cesarian section was done and it was then found that the lower segment of the uterus and the surrounding tissues were so edematous that they had simulated an ovarian tumor. Delivery through the vagina would have been impossible. The patient made a normal convalescence.

Dr. Richardson: I am pleased with Dr. Reynold's remarks about "Nature as an Obstetrician" — she is a mighty poor surgeon. It must, however, be remembered that many of these ovarian tumors are very malignant and that deferring operation till term may be sacrificing the one chance of a radical cure.

[2] See p. 151 of the Journal.
[3] See p. 163 of the Journal.

PAN-AMERICAN MEDICAL CONGRESS.

The fourth meeting of this Congress was opened Jan. 3, 1905, by President Amador, of the Republic of Panama. The formal opening, however, took place in the evening at the National Theater.

President Amador was introduced by Dr. Julio Icaza. President Amador thanked the Congress for the distinguished honor that had been conferred upon

him in being selected to preside over the deliberations of the meeting, which included among its members so many illustrious colleagues. He expressed the hope that great benefit would result from the papers that were to be read. With these few remarks he declared the Fourth Pan-American Medical Congress open for scientific work.

REMARKS BY MR. JOHN F. WALLACE.

The Chief Engineer of the Isthmian Canal Commission, Mr. John F. Wallace, was introduced, and, among other things, said it was unnecessary to dwell on the five hundred years since the canal's early and original conception. It was also unnecessary to dwell upon the progress which had been made so far under the grants and franchises to attempt its construction. He called attention to the fact that the first real proposition to construct the canal emanated from America, and while the results of the French companies were failures, this work simply laid the foundation of its future construction. It would seem fair, then, that the Americans should have another trial, and it was the hope of all that it would be the last. It was a difficult matter when one passed over the line of the canal to-day to realize the extent of the work done and the enormous amount of machinery purchased by the old and new French companies. It was only by a study of the situation on the isthmus of what had been accomplished that one could realize how much the work that had been begun before should contribute to the present success. The former operations on the canal had pointed out what to do and what not to do. The original idea of Mr. De Lesseps was a sea level canal. The reason why this project was abandoned was not one of engineering difficulty, but entirely for a different cause. His plans were changed simply because he did not have the means to put them into execution, not because he discovered anything impracticable in the undertaking from an engineering standpoint. In following in his footsteps, or, rather, in picking up the enterprise, the Americans had commenced at the opposite end of the problem, and all the plans that had been accomplished, the estimates that had been made as to time and progress, were based on the reports of the former commission from the United States to investigate this question. In making a comparison of the Nicaragua route, with an elevation of one hundred and ninety feet above the sea level, he desired to make a fair comparison with the Panama route. It was proposed to create a canal with an elevation of the same height, and it was also proposed to create an artificial lake, and create the same conditions, as nearly as possible, as existed at Nicaragua. The construction of the Panama Canal was one of the problems of the new world. There was hardly any branch of the civil engineering profession that would not have to be called upon to assist in the problem. The construction of the canal might be divided into three parts: (1) The sewerage proposition, which was the excavation by ditches of the sea level portions of the canal. (2) Excavation for a short distance where the material might be excavated and wasted immediately adjacent to the canal. (3) A type of construction which was peculiar to Panama, and that was what might be called the Culebra problem. This problem not only involved the excavation of fifty million to one hundred million cubic yards of material, depending upon the character of the canal, but it consisted in the transportation and disposal of that material over a distance of ten to twelve or fifteen miles away. The Culebra problem was the controlling factor to be considered both as to time, cost and difficulty. The time in which the Culebra cut can be excavated was the determining factor as to the time required for the construction of the canal.

After referring to the labor problem, and the difficulties connected with it, Mr. Wallace spoke of the problem of sanitation and the care and health of the employees who were to be brought there for constructing the canal. This matter was in the hands of Dr. Gorgas, and he would like to say that the success of this work and the ability to bring men there would largely be due to his efforts and the support he received.

SANITARY CONDITIONS AS ENCOUNTERED IN CUBA AND PANAMA, AND WHAT IS BEING DONE TO RENDER THE CANAL ZONE HEALTHY.

This was the title of an address delivered by DR. W. C. GORGAS, Chief Sanitary Officer of the Isthmian Canal Commission. He explained the sanitary conditions in Cuba, and stated that for two centuries the United States had been scourged with yellow fever often imported from Havana. When the United States occupied Cuba, there was a perfectly cast-iron commercial quarantine against the West Indies, in all Gulf ports during every summer. Still worse was it if yellow fever broke out in the United States. To get rid of yellow fever in Havana meant that it would cease to menace the Southern States, so that the sanitation of the Republic of Cuba meant really the sanitation of Havana. For two years, therefore, Havana was cleaned industriously, for the reason it was thought that filth was the cause of yellow fever. Conditions changed, however, when the decision was reached that the stegomyia fasciata was the cause of yellow fever. This theory was advocated by Dr. Carlos J. Finlay of Hanava, twenty years ago. The first practical effort to suppress yellow fever was made as inoculation tests and not as efforts to destroy the mosquito; but some fatal cases which occurred after inoculation stopped all enthusiasm in that direction, and then it was decided to attempt to destroy the mosquito. This met with unexpected and remarkable success. In less than a year Havana was entirely free from yellow fever, and since September, 1901, not a single case had occurred in that city.

The United States came to Panama to build the canal and the work of the Sanitary Department was to preserve health while doing so. In all previous efforts the history of the canal had been darkened by great loss of life. Malaria and yellow fever were the canal's worst enemies. But the yellow fever problem here was really not so difficult as it was in Havana, and the result seemed equally as promising. Continuing, Dr. Gorgas said: "We know more about yellow fever now than we did at Havana; we are pretty certain to be able to eliminate that disease; but malaria is seen under very different conditions from what it was in Havana. Malaria in a big city is chiefly a disease of the suburbs; malaria along with yellow fever was eliminated from Havana by the destruction of the breeding-places of the mosquito, but on the isthmus conditions are different. Here there are twenty-odd villages with 12,000 people scattered over nearly fifty miles; 70% of these have been found to have the malarial organism in the blood; probably a larger percentage would be found were the examinations to be extended over a greater period of time. Moreover, the parasite is not that of simple malarial fever, but the one which breeds the pernicious Chagres fever, of a much severer type, the estivo-autumnal parasite. The plan adopted along the canal is to eliminate the breeding-places by superficial drainage. Much headway has already been made. For instance, at Ancon, the hospital is entirely free from the malarial mosquito. Dispensaries are being established, and all canal people

are encouraged to use quinine. These are the two methods employed for destroying the malarial mosquito. Four fifths of the money appropriated for sanitary matters now goes for the care of the sick, for the commission has determined to take charge of all of those sick within the zone. There is now under way a hospital of 100 beds at Taboga; at Ancon, under Major La Warde, U. S. A., there will be hospital accommodations for about 500; at Miraflores there will be hospital accommodations for 100 chronic patients, including insane and lepers; at Colon, a hospital with 500 beds is expected. At Culebra, Gorgona, Bohio, small hospitals will be erected. At Ancon there is a good general laboratory in which are working Dr. Herrick and Dr. Kendall, both Johns Hopkins men.

Dr. Gorgas promised rapid advances and he was sure that the expectations for complete control of conditions would soon be realized.

EARLIER CONDITIONS OF THE CANAL.

Mr. Tracy Robinson delivered an address on this subject. He reverted to the opening of the Panama railroad on the 31st of January, 1855. This, next to the discovery of the Pacific by Balboa, was the most important event that had occurred on Isthmian soil. In 1869 the overland connection from Omaha to San Francisco was completed, and the prosperity of the Pan-American route waned. He said the people of Panama expected great things from the influence of the medical profession on the new canal project. He believed that Panama under American government would some day be an object lesson for the world. He joined his Panamian brethren in extending the hand of welcome to the members of the Congress. There had not been a real epidemic of yellow fever on the isthmus for fifteen years, although many had died of the fever. There had been 1,200 deaths in five years out of a total number of 6,000 men employed in the construction of the railroad. All the workers on the canal in the sanitary corps were up-to-date medical men — true missionaries. To them the people looked for health and strength. The trained physician led, and he would be the captain in the battle of scientific civilization against bigotry and ignorance.

The Secretary-General of the Congress, Dr. Jose E. Calvo, extended to the members the hospitality of the city, and said that "if we have not the charm of large cities, we still take great pride in your visit, and hope that you will be rewarded for having come so far."

Mexico, Guatemala, United States of America, Honduras, Santo Domingo, Cuba, Peru and Porto Rico sent official delegates, as well as the medical faculty of Costa Rica, and the Academy of Sciences of Havana.

Jan. 4, 1905. — Second Session.

There was an informal excursion in the morning to a suburb called Savanes, where the guests were received and entertained at luncheon by Dr. Icaza.

In the afternoon the scientific session was presided over by Dr. H. R. Carter.

A NEW METHOD OF INCISING AND SUTURING THE LIVER TO RE-ESTABLISH ITS CONTINUITY AND FOR THE CONTROL OF HEMORRHAGE.

Dr. Jacob Frank of Chicago, in a paper with this title, stated that all modern surgery, especially abdominal surgery, sought to secure primary union, thus minimizing infection and hernias. This principle should be applicable to surgery of the liver provided a proper technique was employed. If the surfaces were properly coaptated, the continuity would be re-established, primary union secured, and hemorrhage prevented. Liver surgery had heretofore presented the following dangers: hemorrhage; ignorance of the healing and regenerative power of the liver; infection; cholemia from the escape of bile into the peritoneal cavity. Injuries of the liver had always been considered grave, and those of the concave surface more dangerous than of the convex. Compression had been most usually tried to stop hemorrhages. It was now pretty well proven that hemorrhage might be controlled by the suture, catgut being preferred to silk.

Dr. Frank had lately experimented on dogs, making deep incisions into or through the liver, some of which recovered without any treatment whatever. He then excised a wedge-shaped piece from the liver, securing exact apposition, and securing all bleeding vessels by ligature. The edges were then held in contact and sutured by catgut. The results were excellent. The abdominal incision was a matter of choice. The method was considered particularly applicable to tumors, for the reason that they usually appeared at the edge of the liver. The incision must be free, so as to be certain to remove the growth completely.

Dr. Nicholas Senn of the United States stated that the experiments of Dr. Frank were conducted on normal tissue and that the conditions were not such as one would find in pathological tissue. In cases calling for operation the possibility of hemorrhage was greater because vascular channels were enlarged. In operating, one should strive to imitate nature. The retraction of the cut end of blood vessels was a mechanical impossibility in the parenchyma of the liver. A thrombus was the only thing to be relied on to secure control of liver hemorrhage. Nature would provide such a thrombus when the liver was lacerated. The idea of excising a wedge of tissue he considered excellent.

Dr. George W. Crile of Cleveland, O., stated that in the liver the circulation was low, and that even pressure was essential to continue it. He believed that on this account bleeding could be checked by the method recommended by the essayist.

Dr. Frank, in closing the discussion, stated that he had recently received reports with reference to gall-bladder surgery where the surgeon had found that after the removal of the gall-bladder hemorrhage from the liver was best controlled by sutures. It was very essential to operate as rapidly as possible on human beings, and endeavor to control hemorrhage or prevent it from entering the peritoneal cavity.

SURGICAL PHYSIOLOGY.

Dr. George W. Crile of Cleveland, O., in a paper on this subject stated that surgical practice rested very largely upon altered physiological actions. Good illustrations were the surgical physiology of the two most vital phenomena, respiration and circulation. In respiratory obstruction respirations were not immediately arrested, but were stimulated in force though not in frequency. In mechanical stimulation of the laryngeal mucosa there was usually an immediate respiratory arrest; therefore, there should not be a moment of doubt in differentiating between reflex inhibition and obstruction, thereby avoiding certain crises in the abstraction of foreign bodies or in performing intubation. In administering anesthetics the students should remember that if the tongue was pulled forward too forcibly, respiration would be arrested. A better way was to recall also the increased respiratory action caused by divulsion of the anus, and to call upon the accessory muscular apparatus to aid respiration. Surgical physiology of the circulation was more vital than that of the respiration. The control of the circulation often meant control of life itself. If by any reflex action the vaso-motor system was disturbed,

its function was impaired, and the blood pressure fell. If the surgeon remembered this he would guard against excessive manipulation and he would try to support the circulation by such mechanical means as saline infusions, posture or bandaging. It was known that a hard pulse and high blood pressure were characteristic of increased intracranial pressure. This might lead the surgeon into a false security. He should not push chloroform to full anesthesia, as by so doing the blood pressure is liable to fall and cause a sudden arrest of respiration and circulation. The heart might be inhibited from mechanical stimulation of the trunk of the superior laryngeal nerve in operations upon the larynx, and death might occur although it should not. Furthermore, a blow upon the lower ribs or pit of the stomach did not cause collapse or death from disturbance of the solar plexus, but from inhibition of the heart.

As to suspended animation, he stated that the different parts of the body had varying periods of suspended animation, and death fell unevenly to the different tissues and organs. He had been able to resuscitate a dog fifteen minutes after complete arrest of respiration and circulation. A decapitated dog was kept alive for twelve hours by a continuous slow infusion of a one to fifteen thousand solution of adrenalin in salt solution. The author cited several interesting experiments. The great lesson to be learned was that physiology must be studied carefully to benefit surgery.

SOME GYNECOLOGICAL SUPERSTITIONS.

DR. LUCY WAITE of Illinois, U. S. A., said that these were hard to overthrow. One of the first superstitions was that the uterus had any normal position. It had not, but it might lie in any position. The second was that retrodeviation of the uterus was the cause of constipation. This was not so, as it could not be proved either by dissection or examination. She had five hundred cases analyzed, but could not trace constipation to posture of the uterus alone. The uterus was found in anteroposition in 60%, in retroposition in 40%. Of the anteropositions, 52% gave a history of constipation, while 48% did not. Of the retropositions, 66% complained of chronic constipation, and 33% had normal bowel movements. The third was that backache was a symptom of retrodeviation. She regarded this as nonsense, as one thousand cases examined disproved that superstition. The fourth, that flexion or stenosis was the cause of dysmenorrhea. This was not so, nor was childbirth the only cure. Of 300 cases where the question was asked, "Have you had more or less pain since the birth of your children?" the answer of 135 was, "More pain," of 89 "Less pain," and of 76 "No difference." Some of these 76 had had no pain before or since childbearing. Of the 135, some had had no pain before childbearing. Many women had suffered worse after childbirth than before. She thought that the mania for operating ought to be checked on the death of these superstitions.

DR. GEORGE W. CRILE of Cleveland, O., asked the essayist whether all backaches were attributed to the uterus, and whether they were often accompanied by aches of the legs, to which DR. WAITE replied that not all backaches are traceable as referred pains to the uterus, but that there was usually some pelvic disturbance rather than any malposition of the uterus.

EXTRACTION OF CATARACT.

DR. S. D. RISLEY of Philadelphia, Penn., set forth the technique of extraction based upon certain complicating conditions, their relation to the opaque lens, and the extent to which the complications modified prognosis and rendered the removal of cataract difficult and dangerous. The cataractous eye was to be regarded as not free from disease. In studying cataracts, it would be found that early there were asthenopic symptoms, swollen and red caruncles, thickening of the retrotarsal folds and headache. As the cataract matured and reading was abandoned, these diminished. There might also be encountered during the incipient stage anomalies of refraction and fundal changes, sometimes fluidity of the vitreous. There was an obvious relation between choroidal disease eyestrain, and lens capacity; also between the lens and the gouty or rheumatic diathesis. The nutrition of the eyeball was largely dependent on the circulation of the uveal tract. Vitreous and lens were apt to suffer as well as the posterior capsule; therefore, it was best not to operate in the immature stage, *i. e.*, until the disease changes had ceased. He never attempted operation with a dull gray or amber-colored lens that had ripened slowly or with one that was translucent. When the iris lacked luster, and did not dilate easily, it was liable to traumatic iritis. It was best to treat such cases by iodide and bromides internally and by some mydriatic, and to perform a preliminary iridectomy, four to six weeks in advance, using cocaine if possible. If the lens was extracted in the capsule, Dr. Risley preferred a Kalt stitch through the cornea with a large corneal section; then a wire loop was introduced and the lens delivered by gentle traction. There was some but not unavoidable danger. In anterior capsulotomy, the danger was less and the corneal section might be smaller, but a secondary operation was usually necessary. For this he preferred two knives devised by himself, introduced at the same time. He preferred a light firm bandage with confinement in bed as short a time as possible.

JAN. 5, 1905. THIRD SESSION.

COXA VARA, AND DIFFERENTIATION BETWEEN IT AND STHENIC INFLAMMATORY AND TRAUMATIC AFFECTIONS OF THE HIP JOINT.

DR. NICHOLAS SENN of Chicago stated that coxa vara was a disease of the femoral neck in adolescence, and hitherto had been rarely described in this country. Mueller was the first, in 1888, to give it an earnest clinical study and to prove that it was a disease entirely different from any other hitherto described. Hofmeister and Kocher, six years later, contributed to the study. A genuine coxa vara was characterized by a non-inflammatory softening of the neck of the femur. It was a self-limited disease, confined to the femoral neck, and characterized by anatomical changes. Dr. Senn reported two typical cases in young men, and a third in a man forty-two years old. The last case presented all the classical signs, and the x-ray showed that there was no fracture of the femur as had been suspected before the case came under his observation. There had been the usual pains in the hip joints referred at times to the knee, coming on in paroxysms which would last for two weeks, followed by painless intervals of several days. There was no tenderness or impairment of joint motion. The pain was not aggravated by standing or walking. After two occasions in which the patient slipped and increased the pain, he noticed that the leg was shorter. When seen by the essayist he walked with a decided limp and complained only of muscular weakness. Any infection could be excluded, and there was certainly not a complete fracture. A spontaneous recovery, as well as the degree of bending downward of the neck of the femur in its entire length, and the complete absence of neoplastic inflammatory products excluded absolutely

the possibility of arthritis or senile coxitis. Very little was known with reference to the true nature of coxa vara. The softening of the neck of the femur was the most important element. Trauma, tuberculosis, or inflammatory affections must be excluded. Life itself was never threatened as the disease was self-limited, and sooner or later ended in spontaneous recovery. The general treatment was unimportant. Local treatment should be directed toward relieving pain and limiting the bending of the neck of the femur. Both of these were secured by absolute rest in bed combined with extension. Operative treatment should be delayed as long as possible.

SANITARY CONDITIONS IN CUBA SINCE THE PROCLAMATION OF THE REPUBLIC.

Dr. Carlos J. Finlay, of Havana, Cuba, contributed a paper on this subject, which was read by Dr. Martinez of Havana, in the absence of the author. The subject was divided into; (1) special sanitation against yellow fever; (2) special sanitation against other infectious disease; (3) general sanitation for the preservation of public health. The author stated that there were many who did not yet acknowledge that the stegomyia fasciata was the only means through which yellow fever could be propagated. The author claimed that this was the only method, and that to keep yellow fever patients from being bitten was the only means of subduing the disease itself. He referred in the highest terms to the noble work done by the late Major Walter Reed, Col. W. C. Gorgas and others. He said that Dr. Gorgas, who was the chief sanitary officer of Cuba until May 20, 1902, first drove the infection from the island, and since his régime and up to the present date, December, 1904, notwithstanding the importation of twenty-two cases of yellow fever from foreign ports, not a single case of the disease had occurred in Havana, nor until two months ago in any other part of Cuban territory.

The acute quarantinable diseases about which the island of Cuba was particularly concerned were yellow fever, smallpox, cholera and plague. None of these diseases, except those cases mentioned, had occurred, with the exception of one case of smallpox which was due to an accidental contagion which did not spread. Against small pox they trusted to isolation and vaccination. Against diphtheria, isolation and anti-diphtheritic serum prepared in Havana had given excellent results. Cases of infectious diseases were isolated at home or in some special hospital.

Dr. Purnell, Acting Assistant Surgeon in the Marine Hospital Service at New Orleans, stated that although he accepted the mosquito theory, he did not do so absolutely, inasmuch as there were cases unexplained by this theory, and that measures of prevention besides the attack on the mosquito should be adopted. The great epidemic in Memphis in 1879 occurred after a severe, cold winter, but not until the 9th of July, and if the mosquitoes alone were the cause, the disease ought to have appeared in April. He had known of an outbreak in Jackson, Miss., among men working in buildings which ten years previously had been infected with the disease. Fomites had undoubtedly something to do with the spread of yellow fever.

Dr. H. R. Carter of Panama expressed himself as being positive that yellow fever was conveyed by the bite of a mosquito from sick to sick, and in this way only. He had assisted in stamping out epidemics by methods not necessarily directed against the mosquitoes alone, such as isolation and fumigation, but he knew that their efficacy had destroyed the mosquito incidentally. Sulphur was a good insecticide, but not much of a disinfectant.

Dr. Stern of Jamaica and Panama concurred in the remarks of Dr. Purnell in not accepting the mosquito as the only conveyor of yellow fever.

Dr. Cook of Panama expressed himself in a similar vein.

Dr. Chassaignac of New Orleans, La., considered the mosquito theory beyond refutation. The Havana experiments had furnished positive proof of this, and he did not think there was any other means of transmitting or conveying the disease.

Dr. C. H. Hughes of St. Louis, Mo., spoke of his experience with the disease during his early practice. He was not convinced that the mosquito was the only means of propagation, and expressed himself as believing that flies might transmit the disease.

Dr. Carter referred to fomites, and said that there could be only two ways in which they could convey the infection. One was by direct contact, such as opening a trunk, and the other by environment. If either means was admitted, infection should take place anywhere.

Dr. W. C. Gorgas said he thought at one time fomites was the only cause of transmission of the disease. He then differed from Dr. Finlay, but Major Reed soon convinced him to the contrary. The harmlessness of baggage was observed in Havana, where people from the suburbs were constantly moving back and forth, but never brought infection with them.

Dr. Lewis Balch, in referring to fumigation, said that he relied upon two pounds of pyrethrum powder to one thousand cubic feet, with two hours' exposure. This gave absolute results in killing the stegomyia fasciata.

Dr. Thomas had used pyrethrum, but had found it without value, and said that sulphur was now used exclusively in Louisiana.

Dr. Echeverria of Costa Rica spoke in favor of the mosquito theory, and added that yellow fever had never been known to occur where the stegomyia could not be found.

Dr. Martinez, in closing the discussion for Dr. Finlay, said that to explain isolated outbreaks, it was assumed that children preserved the organism in the blood, as they did malaria, and this offered a source of supply to the mosquito. The study of the development of the parasite in the mosquito showed that an intermediate host was necessary just as it was in the tapeworm. The United States Army Commission had studied the question of fomites very thoroughly. In its report, one instance was cited where the blankets, clothing and bedding of patients ill or dead from yellow fever had been stored in a room, and used by two sets of non-immune fresh arrivals in Cuba, and yet no single instance of infection from this clothing had occurred.

RESOLUTION.

Dr. Charles Chassaignac of New Orleans offered the following resolution:

Resolved, That owing to the suffering and to the serious danger to health and life for which the mosquito is known to be chiefly, if not solely, responsible, it is the imperative duty of all communities and governments to use all the means in their power for the destruction and gradual annihilation of the pestiferous insect in question.

The resolution was seconded and unanimously carried.

CARE AND CURE OF EPILEPSY.

Dr. Charles H. Hughes of St. Louis, Mo., claimed that epilepsy should not in many cases be listed with the curable diseases. He reported ten cases that had

been under observation for twenty-five years, in which there had been no recurrence. In treating epilepsy, he always demanded an agreement that the patient should be under control at least two years, during which time he would treat every function of the individual so as to keep his general health in the best possible condition. Of course, institutional treatment was better in most cases than private treatment.

REPORT FOR THE DELAYED PASSENGERS ON THE "ATHOS."

DR. A. E. MACDONALD of New York stated that when the members accompanying him realized that they could not reach Panama on time, the delegates and members held meetings on board the "Athos." Papers were read and discussed, of which records were kept, and he made a motion that such papers and discussions be allowed to be spread on the minutes of the Congress as a part of the regular proceedings. The resolution was adopted.

PERMEABILITY OF FILTERS TO THE PROTOZOA OF THE WATERS USED IN THE CITY OF LIMA.

DR. HUGO BIFFI of Lima read a paper with this title, saying that the idea of the experiment was to see that filters were serviceable not only to provide good drinking water to those using them, but to secure sterile water for laboratory purposes. They found that some amebæ and flagellate bacilli passed through all the filters. Most filters suffered from prolonged use. He considered the Berkefeld and Grandjæn filters were the best.

PLAGUE AT MAZATLAN, MEXICO.

DR. JOSE RAMOS of Mexico outlined the methods by which the Mexican government was able to suppress the outbreak of plague at Mazatlan in 1900. Complete isolation of plague patients was insisted on. Disinfection was thoroughly carried out; destruction of rats was attempted on a very large scale, and even houses were destroyed by fire to reach results. They had found the use of anti-plague serum very efficacious in suspected cases.

JAN. 7, 1905.

TRACHOMA IN MEXICO.

DR. JOSE RAMOS of Mexico stated that this disease was gradually spreading in the Republic, and there were certain well-recognized areas where it was more frequently found, but there was no doubt that the elevation at which most of the people lived had a good influence on the disease, and that it was rather more benign than in other parts of the world. He urged that popular lectures for general practitioners be given throughout the country on the diagnosis and treatment of trachoma.

DR. CALVO read by title all of the papers on the program, the authors of which were not present, or had had no time to read them.

The delegates and members were warmly received, and royally entertained.

The next place of meeting will be in Guatemala City, Guatemala, in 1908.

THE ETHICS OF LARGE TYPE. — At a stated meeting of the Medical Society of the County of New York, held Dec. 27, 1904, the following resolution was unanimously adopted: "That in any directory or list other than a medical one, it is undesirable that any data should appear other than the name, address and telephone number, and that the use of more prominent type for one name than another is to be severely deprecated." — *Medical Record.*

THE BOSTON

Medical and Surgical Journal.

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THE ANNUAL REPORT OF HARVARD UNIVERSITY, 1903-1904.

ONE is accustomed to turn the pages of this annual report not merely with the hope, but with the assured expectation, of finding much information of interest and much food for suggestive reflection. This could hardly be otherwise with a statement of the operation, the changes and the development of the various departments of the greatest and oldest university of the country, especially when accompanied by the analysis and comments of such a presiding officer as the present head of Harvard.

In regard to Harvard College itself, President Eliot thinks that one of the most encouraging events of the year was the progress made towards acceptance of the entrance examinations, conducted at many points scattered all over the United States, by the College Entrance Examination Board in lieu of the examinations conducted exclusively by Harvard College with its own question papers and its own readers. This Examination Board began its work in 1900, and the Harvard Faculty of Arts and Sciences, after watching its operations, came to the conclusion last spring that it was ready to accept membership and do its part in making the work of this board increasingly successful and useful. This seems to be, in the language of the wicked railroads, a sort of "pooling" of definitions of the subjects of examination and standards of examination on those subjects. Mr. Eliot believes this is likely to result, in time, in a regulation and simplification of the preparatory work done in the secondary schools of the country.

The President's report gives some interesting statistics in regard to the fathers of students

entering Harvard College and the Lawrence Scientific School in the summer and autumn of 1904, and of students in those departments of the University.

"The following table exhibits the occupations of the fathers of the students who entered Harvard College and the Lawrence Scientific School in the summer and autumn of 1904:

	Occupation.	Harvard College. No.	%		Scientific School. No.	%	
	Business	866	43.1		329	62.1	
Profl	Physicians	113	5.6		18	3.4	
	Lawyers	160	8.0	25.5	29	5.5	13.3
	Ministers	73	3.6		10	1.9	
	Others	167	8.3		13	2.5	
	Government Officials	53	2.6		6	1.1	
	Farmers	53	2.6		16	3.0	
	Wage Earners	253	12.6		60	11.3	
	"No Occupation"	56	2.8		..	...	
	No Record	216	10.8		49	9.2	
	Total	2,009	100.0		530	100.0	

Three sevenths of the fathers of the college students are in some sort of business, large or small; and more than four sevenths of the fathers of students in the Scientific School are in trade. Very few farmers send their sons to either the College or the Scientific School. As to wage earners, over 11% of the fathers of the students belong to this class both in College and in the Scientific School. The great majority of the undergraduates come from cities and towns. More than a quarter of the students in Harvard College have fathers who practice the professions; while only between one eighth and one seventh of the Scientific students have fathers in the professions. One student in seven has no father living; but deceased fathers are included in the above table."

The occupations of the "wage earners" as given in an appendix include: baker, carpenter, cook, fireman, gardener, hackman, janitor, laborer, plumber, policeman, stonecutter, tailor, teamster, etc.

Mr. Eliot devotes four pages to the game of football, and this will probably be the most widely quoted and widely discussed portion of the report. It is never safe to try to condense the President's statements, but it seems fair to sum them up in one sentence, that the game of football, as at present played by the teams of American colleges, is a "hateful" game. This view does not seem to correspond with that recently expressed by the President of Dartmouth College. The opening and closing paragraphs on this subject must suffice as quotations: "The game of football has become seriously injurious to rational academic life in American schools and colleges, and it is time that the public, especially the educated public, should understand and take into earnest consideration the objections to this game." This opening statement of his opinion of the relation of the game to academic life is followed by several pages of comment on the objectionable features of the game as played, and the whole is summed up in the following concluding paragraphs:

"What then are the sources of the grave evils in this sport? They are: (1) The immoderate desire to win intercollegiate games; (2) the frequent collisions in masses which make foul play invisible; (3) the profit from violations of rules; (4) the misleading assimilation of the game to war as regards its strategy and its ethics.

"On the question, whether or not football victories do, as a matter of fact, contribute to the growth and reputation of a college or university, there are evidently two opinions. But if a college or university is primarily a place for training men for honorable, generous and efficient service to the community at large, there ought not to be more than one opinion on the question whether a game, played under the actual conditions of football, and with the barbarous ethics of warfare, can be a useful element in the training of young men for such high service. The essential thing for University youth to learn is the difference between practicing generously a liberal art and driving a trade or winning a fight, no matter how. Civilization has been long in possession of much higher ethics than those of war, and experience has abundantly proved that the highest efficiency for service and the finest sort of courage in individual men may be accompanied by, and indeed spring from, unvarying generosity, gentleness and good-will."

This arraignment of football as a fight whose strategy and ethics are those of war; in which every ruse, stratagem and deceit justifiable in actual fighting may be legitimately resorted to; where new tricks are always desirable, as surprises; and where the weaker man is the natural prey of the stronger, is not satisfactory to the advocates and admirers of the game. They claim that every competitive sport is open to trickery, and in none is it customary to seek out and attack the opponent's strongest point; that peaceful arbitration will not serve as a substitute for the game.

To what extent the "hateful conditions" detailed by Mr. Eliot actually obtain in the game seems to be the real point. His plea is a strong one for reform, though hardly for abolition. In the meantime reform comes somewhat slowly, and the merits and faults of the game continue

to be discussed and debated at recurrent intervals.

The most important part of this report as affecting the departments affiliated under the Faculty of Arts and Sciences, *viz.*: the College, the Lawrence Scientific School, the Library and the Graduate School, comes last. It appears that in seven of the last nine years there have been considerable deficits in the combined account of the departments under that Faculty, and this, notwithstanding the introduction of undesirable economies. Everyone is agreed that these departments require a larger income. The question as to the best way of providing such income has developed differences of opinion; some advocating an increase of tuition fees, some the raising of additional endowment, and some a combination of the two methods. President Eliot is a warm advocate of the proposition for raising a fund of $2,500,000 by subscription for the permanent endowment of professorships, assistant professorships, instructorships and assistantships. Whether this endowment should be confined to already existing positions or should be divided between those and new ones to be hereafter created he does not clearly state. Neither does he speculate as to the effect which such an endowment-subscription is likely to have for some time to come upon the usual stream of annual benefactions which flows in on the college. Perhaps he thinks it wiser not to touch on these points at the present time. It is evident that the Board of Overseers is impressed with the necessity of an increase of income, and is not desirous of taking any action now which might interfere with efforts well disposed alumni may be inclined to make toward such an end. The President points out with regret that the college is more dependent upon fees than it was thirty or forty years ago, and that the rate of interest on endowments has greatly decreased in that time. It might also be pointed out that the number of students and of courses has enormously increased, and that the actual value of the *fee* has greatly diminished in that time. The college, undoubtedly, needs and will continue to need *much* more money, and with as little doubt it will from one source or another get *some*.

The health of the students, except among the "Sign-offs," who apparently inhabit for the most part the luxurious dormitories, has been good. Among the teaching staff of five hundred and fifty persons there was no death during the year. A fee of four dollars a year, beginning with the academic year 1904–5, will be charged to every student registered in any Cambridge department of the University for the maintenance of the Stillman Infirmary; this, with the income from the invested funds of the Infirmary, is expected to meet the expenses of the institution for the present.

The Medical School is passing through a transitional and, therefore, somewhat trying period. At the close of the year the last class was graduated to which condidates not holding a degree in Arts, Literature, Philosophy or Science could be admitted. This requirement for admission, has, as was to be expected, greatly reduced the total number of students in the school, but the number of students holding such degrees Oct. 1, 1904, was forty-nine more than were in the school when the new requirement went into effect. It is thought that the probable minimum of students has now been reached, and that henceforth the number may be expected to rise gradually. The school is becoming more and more a center of medical research, as is shown from year to year by the increasing number of titles of theses relating to investigations carried on by those in some way connected with it.

A new laboratory of Comparative Pathology has been built in connection with that department at the Bussey Institute, which will be used both for pathological research and for the work of the State Board of Health in preparing diphtheria antitoxin and vaccine matter.

Through the subscriptions of three citizens of Boston, one of them a professor and one a student in the school, aided by a contribution from the Rockefeller Institute, the pathological department was able to send an expedition to the Philippines to continue the work on smallpox. This expedition is making, at the same time, good use of its opportunities to study other infectious diseases, notably chicken pox. It has also observed an endemic dermatitis in the islands caused by a moth resembling the brown-tailed moth.

Research work under the auspices of the Committee on Surgical Research has been actively carried on during the year, and a considerable number of excellent contributions have resulted therefrom.

The Dental School has continued to do good work under difficult conditions. A deficit was turned into a surplus by the self-sacrificing generosity of its instructors. The courses in anatomy, physiology, histology and bacteriology given at the Medical School have been reorganized, so that dental students receive more special training adapted to their requirements.

MORTALITY AMONG PHYSICIANS.

THE *Journal of the American Medical Association* has undertaken an interesting and valuable statistical investigation into the deaths of physicians during the year 1904 and the causes. The figures are obtained from the deaths published in that journal during the year. The number so recorded was 2,142 in the United States and Canada, giving a mortality of 17.14 a thousand. The average time of active practice was upwards of thirty years, with an average at death of over sixty years. In spite of conscientious attempts to get satisfactory and exact information the statistics are in certain respects incomplete. Often it was impossible to ascertain the exact cause of death, or the cause was manifestly obscure or incorrect in nearly one thousand cases. The difficulty of obtaining the exact age and also the number of years in practice was likewise considerable. During the year, 166 members of the American Medical Association died. The causes of death were naturally numerous. Heart disease leads the list with 205, including sudden deaths supposedly due to disease of the heart. Next in order was cerebral hemorrhage, including the deaths under the head of paralysis or apoplexy, with 179 cases. Of clearly defined disease pneumonia leads with 172 deaths, which is 7½% of the total mortality. Nephritis and uremia caused 107; tuberculosis, 90; cancer, 39; typhoid fever, 37; septicemia, 23; diabetes, 20. Other diseases in decreasing numbers claimed certain victims. Of the total deaths 143 were due to violence, 95 to accident, 36 to suicide and 12 to homicide. Of those who committed suicide it is noteworthy that 14 chose poison as a means. The ages at death naturally varied between wide limits, the youngest being twenty-two and the oldest one hundred and four, the average, as already stated, being sixty. Fifty-seven deaths occurred at this age, with a somewhat decreasing number at the ages above up to seventy-three. Nineteen lived to be over ninety, 241 over eighty, and 3 had passed the age of one hundred.

From the foregoing figures, which are given considerably more in detail in the *Journal of the American Medical Association* for Jan. 14, it appears that physicians on the whole live as long as other people and die of essentially the same diseases. It is noticeable in a series of statistics of this sort that disorders of the circulatory system constitute a very large proportion of the causes of death. Heart disease and cerebral disease, which naturally depend upon diseases of the circulatory apparatus, stand at the head of the list of diseases. It is also noticeable that infectious diseases, to which physicians are continually exposed, claimed an extremely small number of victims. Diphtheria and scarlet fever, for example, in this series of statistics, but three each.

The *Journal of the American Medical Association* has on several occasions rendered excellent service in its tabulation of statistics. We refer particularly to the yearly work on tetanus, which we have on previous occasions commented upon editorially. These statistics on the mortality and term of life of physicians are also of interest and value, and could they be continued over a sufficient number of years would add much to our general knowledge.

UNTOWARD EFFECTS OF X-RAYS.

THE earlier idea that the x-rays were powerful for good, and incapable of serious harm, has been proved false by much sad experience. Cases are accumulating in which x-ray burns have been most serious in their effects, and particularly has it been demonstrated that long and repeated exposure to the rays may lead to such alterations of the skin that malignant disease supervenes. There has been a curious failure to recognize the extraordinary power of the energy, whatever it may be, which is manifested by the x-rays, and especially its power for harm.

An interesting and no doubt important series of observations was recently presented before the New York Academy of Medicine by Dr. F. Tilden Brown, relative to the effect of the x-rays upon sexual conditions. The *Medical News* comments upon this communication and quotes the following somewhat startling remarks of Dr. Brown:

"He [Dr. Brown] had to announce that men by their mere presence in an x-ray atmosphere, incidental to radiography or the therapeutic uses of the rays, after a period of time — as yet undetermined — will be rendered sterile. In the last few days ten individuals who have devoted more or less time to the work during the past three years — none of whom have had any venereal disease or traumatism involving the genital tract — have been found to be the subjects of absolute azoospermia. None of the number are conscious, however, of any change or deterioration in regard to their potency."

In support of this statement cases are quoted, one being a patient who was known to have active spermatozoa before treatment by the x-rays for pruritus ani. Following the treatment the spermatozoa disappeared, and it was only after several

months that they again appeared in active form. In view of this, at first sight, surprising result, our contemporary calls attention to the effects which have been produced in lower organisms by exposure to the action of the x-rays. For example, the inhibitory effect upon the growth of seeds has been observed and experimentally proved. Somewhat similar results have been obtained in experiments with the larvæ of beetles, changes of such a character being induced in the body tissues that development does not normally take place. The extraordinary effects of the emanations of radium in inhibiting growth which have been described in considerable detail, are also well recognized phenomena of an analogous sort. Our contemporary alludes to other investigations. For example, Albers-Schönberg has produced azoospermia in rabbits by exposing the abdomen to the x-rays. Very recently Halberstaedter, studying the effect of the x-rays on the ovaries of rabbits, has found undoubted changes, consisting essentially in the disappearance of the Graafian follicles at the end of about fifteen days.

There is, therefore, nothing impossible in the proposition brought forward by Dr. Brown that the reproductive organs of man should be so far affected by exposure to the x-rays that they temporarily, at least, are prevented from elaborating spermatozoa, and that thereby sterility may be produced. The idea is not a pleasant one, but if proved true, by further investigation, it should at least have a salutary effect in teaching still further the lesson which many have been slow to learn, that the possibilities of harm in the x-rays are probably much more far-reaching than we at first imagined and that an ever-increasing caution is the part of wisdom in dealing with so subtle and intangible a force.

MEDICAL NOTES.

INSTITUTES FOR THE STUDY OF CANCER. — It is stated that $50,000 has been given the Government of the Grand Duchy of Baden toward founding an institute for the study of cancer at Heidelberg. Provision has also been made for its location and for its maintenance.

DEATHS FROM DISEASE IN THE JAPANESE ARMY. — It is reported that from the time of the landing of General Oku's army in Manchuria in May up to Dec. 1, there have been but 40 deaths from disease. Upwards of 24,000 cases of illness were treated, of whom about 5,600 were sent back to Japan. Of these latter 40, or considerably less than 1%, died. More than 18,500 cases recovered at the front and were again able to serve in active operations. Typhoid fever and dysentery together numbered less than 500 cases. Beri-beri was somewhat more prevalent, but apparently not ordinarily fatal in its results. It is presumed that a similar freedom from the diseases ordinarily met with in armies existed also in the other Japanese armies. In view of these facts the methods of the Japanese may well be studied in detail. This we have no doubt will be done.

THE CENTENARY OF MANUEL GARCIA. — On the centenary of Manuel Garcia, the inventor of the laryngoscope, which takes place March 17, a celebration will be held in London, at which many countries will be represented. His portrait, painted by Mr. John Sargent, will be presented to him on this occasion. A banquet, attended by ladies, will conclude the festivities.

THE NATHAN LEWIS HATFIELD PRIZE FOR ORIGINAL RESEARCH IN MEDICINE. — Five hundred dollars will be awarded by the College of Physicians of Philadelphia to the author of the best essay submitted in competition on or before March 1, 1906; subject, " The Clinical and Pathological Diagnosis of Sarcoma." Essays must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device, and containing the name and address of the author. They must embody *original* observations and researches. The committee reserves the right to make no award if none of the essays submitted is considered worthy of the prize. Further information can be had of Francis R. Packard, M.D., Chairman, College of Physicians, 219 South 13th Street, Philadelphia, Pa.

COURSE OF INSTRUCTION IN PUBLIC HEALTH. — The authorities of the University of Pennsylvania, realizing the efforts which are being made in communities throughout the country to obtain officials who have had some special training in matters pertaining to public health, and that each year the demands for men of this type (either as chiefs of departments or in some subordinate position) is increased, and that at the present time there is a lack of men qualified to fill such positions, to meet the needs of such instruction, will introduce into the curriculum, beginning Oct. 1, 1905, a course in Public Health.

This course will include the following subjects: " Sanitary Engineering," " Sanitary Legislation," " Inspection of Meat, Milk and Other Animal Products," " The Sanitary Engineering

of Buildings," "Social and Vital Statistics in the United States," "Practical Methods Used in Sanitary Work," "General Hygiene" and "Personal Hygiene."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Feb. 8, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 39, scarlatina 22, typhoid fever 16, measles 8, tuberculosis 31, smallpox 0.

The death-rate for the total deaths reported during the week ending Feb. 8, 1905, was 20.63.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, Feb. 4, 1905, was 213 against 197 the corresponding week last year, showing a increase of 16 deaths, and making the death-rate for the week 18.10. Of this number 104 were males and 109 were females; 211 were white and 2 colored; 132 were born in the United States, 79 in foreign countries, and 2 unknown; 58 were of American parentage, 135 of foreign parentage, and 20 unknown. The number of cases and deaths from infectious diseases reported was as follows: Diphtheria, 38 cases and 3 deaths; scarlatina, 29 cases and 2 deaths; typhoid fever, 25 cases and 3 deaths; measles, 12 cases and no deaths; tuberculosis, 33 cases and 16 deaths; smallpox, 0 cases and no deaths. The deaths from pneumonia were 36, whooping cough 1, heart disease 33, bronchitis 2, and marasmus 1. There were 10 deaths from violent causes. The number of children who died under one year was 33; the number under five years, 42. The number of persons who died over sixty years of age was 74. The deaths in public institutions were 53.

THE HOOKWORM DISEASE. — Dr. Charles Wardell Stiles of the Public Health and Marine Hospital Service addressed the Society of Arts at the Institute of Technology, Feb. 9, 1905, on the Hookworm Disease.

A NEW OTOLOGICAL AND LARYNGOLOGICAL SOCIETY. — On Jan. 20, a meeting was held at the Massachusetts Eye and Ear Infirmary for the formation of a society of those interested in diseases of the ear, nose and throat. The society is to be called "The New England Oto-Laryngological Society" and will hold meetings on alternate months during the winter. The following were elected as officers for the ensuing year: President, Dr. F. L. Jack; Vice-president, Dr. S. W. Langmaid; Secretary and Treasurer, Dr. Philip Hammond.

NEW YORK.

DEATHS DURING 1904. — The State Department of Health reports that there were 141,564 deaths in the State of New York during the year 1904, which is the largest annual mortality ever officially recorded. The death-rate was 18.2 as against an average death-rate for the past five years of 17.2. There were 380 deaths a day on an average through the year, as against 350 a day in 1903. In March there were over 14,000 deaths, a number never before reached in any month on record. Pneumonia was one of the chief causes of mortality. In the first five months of the year, 2,000 more deaths were reported from this disease than in the same period of the preceding year, and the mortality from it constituted 12.5% of the total deaths. During the year pulmonary tuberculosis caused over 14,000 deaths, or about 10% of the total. This was very nearly the same as the rate from pneumonia. In the last twenty years there have been 259,000 deaths from consumption, and with little variation between 12,000 and 14,000 deaths each year. The death-rate from this disease during the twenty years is not given in the report, but, taking into consideration the increase in population, the fact that the actual number of deaths has remained about the same would indicate a gradual reduction in the mortality from this cause.

DIMINUTION IN CITY DEATH-RATE. — It is gratifying to learn that in the city of New York the year has commenced with a considerable diminution in the death-rate, as compared with 1904. The weekly reports of the Health Department show that during the month of January the mortality represented an annual death-rate of 19.82, as against 18.75 in December and 21.22 in January of last year. Among the diseases in which there was an increased fatality were the following: The weekly average of deaths from diphtheria and croup increased from 37 in December to 42 in January; the weekly average from scarlet fever, from 13 to 16.5; from epidemic cerebrospinal meningitis, from 14.25 to 27; from influenza, from 8.5 to 23.75; from pneumonia, from 165 to 180.25; from broncho-pneumonia, from 102.5 to 115.25; from acute bronchitis, from 35.75 to 39.5; from pulmonary tuberculosis, from 150.5 to 162; from diarrheal diseases from 31.75 to 35.25; from diarrheals under two

years of age, from 24 to 28.5; from cancer, from 52.75 to 55.5; and from Bright's disease and nephritis, from 126.25 to 132.25. Among the few diseases which showed a diminished mortality were typhoid fever, which decreased from a weekly average of 17.25 to one of 11.5, and organic heart diseases, the weekly average of deaths from which declined from 116.25 to 103.25. In the month of January, 1904, the weekly average of deaths from pneumonia was 226.5, as against 180.25 in January, 1905. On the other hand, the weekly average of deaths from cerebrospinal fever in January, 1905, was only 6.25, while in January of this year it was 27. The fact that the number of cases was nearly twice as great as in the month of December would seem to indicate the advent of another serious epidemic of this very fatal disease.

ANNUAL MEETING OF MOUNT SINAI HOSPITAL SOCIETY. — The annual meeting of the Mount Sinai Hospital Society was held in the new hospital buildings at Fifth Avenue and 100th Street, on January 29. The total cost of site, construction and equipment was reported as aggregating $2,752,566. This has all been paid, but it was announced that it would be necessary to increase the annual membership so as to yield at least $50,000 more than at present, in order to meet the expenses of maintenance. It is estimated that the cost of this will be $300,000 a year when all the departments of the institution are opened to their full capacity. In regard to the pathological department, the building for which was erected and completely equipped by Adolph Lewisohn, it was announced that the donor had generously offered to pay all the expenses of its maintenance.

THE CORNELL DAM. — The new Cornell dam, in the Croton watershed in Westchester County, has now been completed, after ten years of labor. It is stated to the the largest piece of masonry in the world, with the exception of the Pyramids of Egypt, and it will hold thirty billion gallons of water. It is estimated by the engineers that it will require about two years for the dam to fill, and that when the water reaches the base of its coping it will make a lake seventy miles in circumference. For the first year the principal supply of water will come from the overflow of the old Croton dam, the latter will then be flooded, and the water will rise thirty feet above it.

CONVICTION OF A CORONER. — Dr. Moses J. Jackson, one of the city coroners, was on Feb. 1 convicted in the Court of General Sessions on a charge of bribery, based on an offer to an attorney to obtain the discharge of a client, an illegal practitioner of medicine, for the sum of five hundred dollars. Dr. Jackson has hitherto been a reputable physician and is a member of the County Medical Society. In bringing in their verdict of guilty the jury made a strong recommendation for mercy.

Obituary.

HOMER L. BARTLETT, M.D.

DR. HOMER L. BARTLETT, a well-known physician of Brooklyn, N. Y., died Feb. 3, in Thomasville, Ga., where he had gone for his health. He was born in Chittenden County, Vt., in 1830, and was graduated from the College of Physicians, New York, in 1855. In 1857, he settled in the town of Flatbush, Long Island, now a part of Brooklyn, where he became one of the most prominent citizens and was identified with almost every improvement in that ancient community. He organized the board of health, becoming health commissioner, and later the police department, of which also he was made the head. In addition, he organized the Flatbush Water Company and the company which introduced gas into the town; for many years he was visiting physician to the Kings County Penitentiary, and he was at one time vice-president of the Kings County Medical Society. Dr. Bartlett was a medical author of considerable repute, and he also wrote a number of books of fiction, basing his stories in many instances on the Indian legends and traditions of Long Island.

Miscellany.

RECTAL ALIMENTATION.

In *American Medicine*, Feb. 4, Edsall and Miller refer to the literature and their own previous work which indicate that nutrient enemata are very poorly absorbed and that exclusive rectal alimentation is incapable as a rule of maintaining a nutritive balance. They report a series of experiments in which they carried out rectal alimentation in dogs and also determined the absorption in isolated loops of intestines in dogs; and further they report an absorption experiment in a human being. This work was done in order to determine in how far it is possible to improve fat absorption by giving the fats in the form of soaps, or by giving them in an artificial emulsion, when the emulsion is so prepared that it will not readily be broken up in the bowel. Their results were such as to convince them that it is impossible by any methods now available

to administer successfully sufficient soap to make it of decided nutritive value. Their results with an artificial fat emulsion, particularly in the human subject, were somewhat encouraging, and they believe that by further study it may be possible to increase the clinical value of nutritive enemata though it is still a question whether it will ever be possible to maintain nutrition in this way.

Correspondence.

WATER PURIFICATION.

NEW YORK, Jan. 31, 1905

MR. EDITOR: From your report of the proceedings of the Havana meeting of the American Public Health Association, I read that,

"V. B. Nesfield recommends the use of tablets made from 1½ gm. bleaching powder and ½ gm. sodium bicarbonate. He claims that these will each sterilize a pint of water in five minutes, or, better, ten. He removes the paste of chlorine by adding a tablet of sodium sulphate. He claims that by such use the most foul river water can be made free from disease germs and palatable."

This proposition will undoubtedly be of interest to any one looking for a development in the vexatious problem of water purification, and especially attracts my attention, as I have been working on a similar proposition. But, setting aside the question whether the use of chloride of lime to sterilize drinking water is advisable, I believe that the use of two tablets, one after the other, is relatively clumsy and unnecessary.

Chemistry evidently has developed more rapidly than any one could possibly follow, a reason why we sometimes overlook new feasibilities. Knowing that the bleaching powder, chloride of lime, is a mere agent for the generation of oxygen, and that oxygen in *statu nascendi* does the bleaching as well as the sterilizing, chemistry nowadays offers certain oxygen carriers, the peroxides, which by mere decomposition will furnish in a direct way oxygen, which in fact alone is accomplishing the desired work upon organic matter or bacteria. One of these chemicals is peroxide of calcium, another one peroxide of magnesium, both are entirely harmless to our system, indeed even of high therapeutical value and readily liberate a considerable amount of active oxygen when dissolved in water and dilute acid.

One tablet made of 1½ tenths of a gram of peroxide of calcium and the equivalent of citric or tartaric acid will act in a pint of water in exactly the same way as two tablets, one made of 1½ gm. chloride of lime and ½ gm. soda bicarbonate and one of sodium sulphate.

The striking difference in the quantity necessary to obtain the same results — standing in a ratio of 1 to 10 — proves the above statement as to the efficiency of the oxygen carrier, directly generating oxygen, compared to the efficiency of the oxidizing agent, indirectly generating oxygen.

I deem it unnecessary to enter into more extensive comparisons as to the nature of these two kinds of sterilizing tablets, for any physician or bacteriologist as well as any food chemist will soon see the difference and then probably give the preference to the simple peroxide tablet, naturally suited to that purpose.

In an article which appeared in the January 1 issue of *The American Inventor* entitled "A Legitimate Food Preservative, Active Oxygen," I published some experiments made in the New York Board of Health Laboratory. A part of these were made with tablets similar to those described above and the purpose was also to sterilize drinking water.

The paragraph referred to reads as follows:

"TYPHOID CONTAMINATED WATER.

"The experiments entailed the use of a preparation made in tablet form which could readily generate oxygen.

"Two tablets killed 2,250,000 typhoid bacilli in 150 cc. of distilled water in one minute.

"One tablet killed 2,250,000 typhoid bacilli in 150 cc. of distilled water in thirty minutes.

"One-half tablet killed 2,250,000 typhoid bacilli in 150 cc. distilled water in twenty-four hours."

The value of the use of such tablets should not be overlooked as in this way any body will be enabled to sterilize any water at any time wherever he may be, undoubtedly a most convenient way to solve the all important question of a rational water purification.

Very truly yours,

R. V. FOREGGER, PH.D.

CLOSER RELATIONS BETWEEN PHYSICIANS AND HOSPITAL.

MR. EDITOR: In connection with the letter of your correspondent who argues that certain advantages would be derived from the establishment of closer relations between physicians who send their patients to hospitals and the medical men who have charge of such cases after admission to hospital wards, the enclosed blanks may be of some interest. These various forms of notification were adopted by the Board of Directors of Mount Sinai Hospital upon the suggestion of one of our attending surgeons:

DEAR DOCTOR: Your patient has been admitted to the Hospital and has been placed in charge of Dr. in Ward .

The patient may be visited by you between the hours of 10 A.M. and 5 P.M. any day at your convenience.

It is desired that no suggestions concerning the patient be made to the nurses or to the House Staff. The Attending Physician or Surgeon will be glad to confer with you on any matter connected with the case.

Yours very truly,

S. S. GOLDWATER, M.D., *Superintendent.*

DEAR DOCTOR: M , referred by you to this Hospital, will be operated upon on at o'clock, A.M. P.M.

You are invited to be present.

Yours truly,

S. S. GOLDWATER, M.D., *Superintendent.*

DEAR DOCTOR: Your patient was to-day discharged from the Hospital. The condition of the patient is

Yours truly,

S. S. GOLDWATER, M.D., *Superintendent.*

While our practice here does not yet exhibit that perfect co-operation which is advocated by your correspondent, it represents at least a step in the direction of proper consideration for the rights and needs of the general profession, whose support is so essential to the welfare of large general hospitals.

Very truly yours,

S. S. GOLDWATER, M.D., *Superintendent.*

PATENT MEDICINE BILL.

BOSTON, Feb. 2, 1905.

MR. EDITOR: A bill is pending in the Massachusetts Legislature to require that every patent medicine shall have the formula of its ingredients printed on the label of the bottle. Laws to this effect exist in Germany and France, and a similar regulation has just gone into effect in New Zealand.

The bill was introduced on petition of Mrs. Julia Ward Howe and others. It is fought by the Druggists' Association, because they think that people would not take so much patent medicine if they knew what they were swallowing.

A hearing on the bill will be given at the State House on Feb. 13, at 10.30 A.M., in Room 439. The measure ought to have the support of the doctors, and it is hoped that as many as possible of those interested will attend.

Very truly yours,

ALICE STONE BLACKWELL.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 28, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,437	415	23.03	21.71	2.78	.97	1.99
Chicago . . .	1,990,750	558	161	23.10	17.19	1.79	1.25	.18
Philadelphia	1,407,988	439	115	20.44	19.84	2.00	2.20	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	208	64	21.15	13.94	.96	1.92	.48
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,377	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	83	23	10.84	31.33	2.41	—	—
Boston . . .	617,950	204	35	19.61	25.00	1.47	.98	1.96
Worcester . .	136,925	46	18	8.35	19.56	—	—	—
Fall River . .	119,349	35	12	20.00	28.57	2.86	—	—
Lowell . . .	104,402	43	9	6.97	13.95	—	—	—
Cambridge . .	100,998	23	4	26.09	13.04	4.35	—	—
Lynn	73,875	27	5	3.70	25.92	—	—	—
Lawrence . .	72,348	22	7	9.09	31.81	4.54	—	—
Springfield .	72,020	23	5	8.70	30.43	4.35	—	—
Somerville .	70,413	19	3	10.53	21.05	5.23	—	—
New Bedford .	68,863	37	14	21.61	18.91	5.40	2.70	—
Holyoke . . .	50,598	18	4	22.22	16.67	11.11	—	5.55
Brockton . .	46,601	18	3	16.67	11.11	—	—	—
Newton . . .	39,510	13	3	7.70	15.40	—	—	—
Haverhill . .	39,061	8	1	12.50	25.00	—	—	—
Malden . . .	37,205	15	1	13.33	13.33	—	—	—
Salem	37,188	—	—	—	—	—	—	—
Chelsea . . .	35,499	12	1	—	25.00	—	—	—
Fitchburg . .	36,335	8	2	12.50	12.50	—	—	—
Taunton . . .	34,577	—	—	—	—	—	—	—
Everett . . .	30,209	7	3	14.30	14.30	14.30	—	—
North Adams .	29,201	5	1	—	20.00	—	—	—
Quincy . . .	26,798	4	1	25.00	—	—	—	25.00
Gloucester .	26,127	8	2	12.50	—	—	—	—
Waltham . .	25,797	9	—	—	11.11	—	—	—
Brookline . .	25,576	6	1	—	—	—	—	—
Pittsfield . .	24,870	10	1	—	10.00	—	—	—
Medford . .	21,956	5	—	—	20.00	—	—	—
Chicopee . .	21,692	5	1	40.00	—	—	—	—
Northampton	20,314	5	1	20.00	—	—	—	—
Beverly . . .	15,807	5	1	—	40.00	—	—	—
Leominster .	15,711	5	2	20.00	—	—	—	—
Clinton . . .	15,694	3	1	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	2	2	—	—	—	—	—
Newburyport	14,478	6	1	—	16.67	—	—	—
Woburn . . .	14,315	4	1	25.00	50.00	—	—	—
Melrose . . .	13,819	4	1	25.00	—	—	—	—
Westfield . .	13,809	3	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	6	0	—	16.67	—	—	—
Revere . . .	13,609	—	—	—	—	—	—	—
Framingham	13,574	—	—	—	—	—	—	—
Peabody . .	13,405	—	—	—	—	—	—	—
Gardner . . .	12,324	4	2	—	25.00	—	—	—
Southbridge .	11,716	5	3	80.00	20.00	60.00	—	—
Watertown .	11,575	4	2	50.00	25.00	25.00	—	—
Weymouth . .	11,350	—	—	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,471; under five years of age, 933; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 715; acute lung disease 702, consumption 369, scarlet fever 21, whooping cough 17, cerebrospinal meningitis 36, smallpox 1, erysipelas 11, puerperal fever 21, measles 13, typhoid fever 39, diarrheal diseases 88, diphtheria and croup 81.

From whooping cough, New York 6, Chicago 9, Boston 1, Worcester 1. From scarlet fever, New York 13, Philadelphia 2, Baltimore 2, Providence 1, Boston 2, New Bedford 1. From cerebrospinal meningitis, New York 28, Chicago 1, Baltimore 1, Boston 4, Holyoke 1, Quincy 1. From smallpox, Chicago 1. From erysipelas, New York 6, Chicago 5. From typhoid fever, New York 14, Chicago 7, Philadelphia 11, Baltimore 4, Boston 2, New Bedford 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending Jan. 14, 1905, the death-rate was 17.5. Deaths reported 5,251; acute diseases of the respiratory organs (London) 174, whooping cough 86, diphtheria 60, measles 114, smallpox 5, scarlet fever 42.

The death-rate ranged from 7.6 in Willesden to 35.8 in Stockton-on-Tees; London 15.8, West Ham 14.7, Brighton 20.5, Southampton 14.1, Plymouth 21.1, Bristol 18.8, Birmingham 19.7, Leicester 14.4, Nottingham 20.5, Birkenhead 15.3, Liverpool 20.0, Wigan 13.2, Bolton 15.2, Manchester 19.6, Salford 14.9, Halifax 24.0, Bradford 20.9, Leeds 20.2, Hull 25.3, Sheffield 21.0, Newcastle-on-Tyne 21.1, Cardiff 19.7, Rhondda 14.2, Leyton 10.5, Merthyr Tydfil 25.4.

METEOROLOGICAL RECORD.

For the week ending January 28, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 22	30.02	28	37	20	91	78	84	S	E	8	12	R.	C.	.11
M.. 23	30.28	17	32	12	57	48	52	N	W	14	12	C.	C.	0
T.. 24	30.14	16	27	6	81	92	86	N	W	5	16	O.	N.	.09
W.. 25	29.65	17	25	9	96	100	98	N	N	24	30	N.	N.	.81
T.. 26	29.81	10	16	5	69	50	60	N	W	24	24	O.	C.	T.
F.. 27	30.06	20	30	10	54	50	52	W	W	12	15	C.	O.	0
S.. 28	29.99	24	32	16	68	57	62	S	W	8	12	O.	C.	.02
Σ	29.99		27	11			71							1.03

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Σ Means for week.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY MEETINGS. — The Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society will hold a meeting at the Library, 8, The Fenway, SATURDAY, Feb. 11, 1905. Program: Physiological Economy of Nutrition: Prof. Russell H. Chittenden of Yale University, New Haven, Conn. Discussion: Prof. Lafayette B. Wendel of Yale University and Dr. Otto Folin of the McLean Hospital at Waverley.

GEO. B. GAY,
FRED B. LUND.
ELLIOTT P. JOSLIN,
Committee on Medical and Social Meetings.

BOSTON MEDICAL LIBRARY MEETINGS. — The Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society will hold a meeting at the Library, 8, The Fenway, Wednesday, Feb. 15, 1905. Program: The Protozoa in the Etiology of Infectious Diseases: Prof. G. N. Calkins, professor of Comparative Zoology, Columbia University. Medical Studies in the Philippines: Dr. E. E. Tyzzer (recently from Manila), assistant in Pathology, Harvard Medical School. General Discussion.

GEO. G. SEARS, *Chairman.*
EDWIN A. LOCKE, *Secretary.*

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — The Section on Ophthalmology will hold a regular meeting on Thursday, Feb. 16, 1905, at 7.30 P.M., at Hotel Nottingham. Papers: "A Few Clinical Observations and Practical Suggestions Concerning the Nasal Passages and the Relation they bear to the Organs of Sight and Hearing," Dr. Alice G. Bryant. "Certain Contagious Diseases of the Eye, of Special Importance to the General Practitioner," Dr. Louise P. Tingley. Discussion: Drs. Dexter, Call, Smith, Culbertson, Hobart, Bond, Denig, Nagle.

DR. BLANCHE A. DENIG, Secretary.
Hotel Bristol, Copley Sq., Boston.

RECENT DEATHS.

SAMUEL EZRA THAYER, M.D., M.M.S.S., died in Wenham, Feb. 5, 1905.

JOHN MALACHI DONLAN, M.D., M.M.S.S., died in Fitchburg, Jan. 26, 1905. Age thirty years.

BOOKS AND PAMPHLETS RECEIVED.

The Surgical Treatment of Bright's Disease. By George M. Edebohls, A.M., M.D., LL.D. New York: Frank F. Lisiecki. 1904.

In Defense of the Attenuated Drug. By Royal S. Copeland, A.M., M.D. Reprint.

Practical Physiological Chemistry. By J. A. Milroy, M.A., M.D., and T. H. Milroy, M.D., B.Sc., F.R.S.E. Illustrated. New York: Longmans, Green & Co. Edinburgh: William Green & Sons. 1904.

Text-Book of Nervous Diseases and Psychiatry. For the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D. Sixth Revised and Enlarged Edition. Illustrated. New York: William Wood & Co. 1904.

Original Articles.

THE PROGNOSIS OF EPILEPSY.*

BY WILLIAM ALDREN TURNER, M.D., LONDON,

Fellow of the Royal College of Physicians of London, Physician to Out-Patients, the National Hospital for the Paralysed and Epileptic; and King's College Hospital; and Visiting Physician, the Colony for Epileptics, Chalfont, Bucks.

ALTHOUGH the study of epilepsy in general dates from a period far back in classical times, detailed attention to the prognosis of the disease was not made a subject of special study until the appearance of Herpin's well-known work, "Du Pronostic et du Traitement de l'Epilepsie," published in Paris in 1852. This writer's conclusions, and the statements regarding his cures were so bright, and so much at variance with what had previously been accepted doctrine that attention was again called to the possibility of cure in many cases of epilepsy.

A few statistics on this subject may, therefore, be given, with a view to show the variability existing between the results of treatment obtained at different periods. Before the introduction of the bromides, it is interesting to recall the high percentage of so-called cures which have been recorded:

	Per cent of cures
Hufeland gave . . .	5
Russell Reynolds gave	10
Trousseau gave . .	13
Herpin gave	50

The almost universal administration of the bromides since their introduction in 1857, in the treatment of epilepsy, has in no way affected the variability in the results. To mention only a few instances:

	Per cent of cures
Nothnagel gives	4 to 5
Spratling gives	5
Laehr gives	6
Ackermann gives . . .	7.6
Dana gives	5 to 10
Wildermuth gives . . .	8.5
Habermaas gives . . .	10.3
Alt gives	12.5

It must be evident that some explanation ought to be forthcoming as to the difference existing between the statistics of authors upon the results obtained before and since the introduction of the bromide treatment. First, some proportion of the existing difference is accounted for by the greater precision exercised in diagnosis, the later authors excluding from their statistics all cases of epilepsy due to organic disease. Secondly, much of the discrepancy existing in statistics depends upon the definition of "cure"—the interpretation differing widely. Most authors fail to state in their writings what is their definition of "cure," or recovery from epilepsy, and in the majority of instances, so-called cures are merely long remissions occurring spontaneously, or as the result of suitable treatment.

The cases upon which the following observations are based have been obtained from the records of the National Hospital for the Paralysed and Epileptic, Queen Square, London, and from the cases under care and treatment at the Colony for Epileptics, Chalfont-St.-Peter, Buckinghamshire. Of the former, 355 and, of the latter, 161 were available for statistical purposes. In analyzing the cases certain guiding principles were laid down, and the following eliminations were made: All cases which showed any coexisting complication, such as organic cerebral disease, and all cases of idiocy and pronounced imbecility. By observing these restrictions, cases of so-called idiopathic epilepsy were, as far as possible, obtained; while any transitory amelioration resulting from medicinal or other treatment was checked by fixing the minimum period of observation at two years.

It is not proposed in this communication to detail the figures and percentages which have been already published in the *Transactions of the Royal Medical and Chirurgical Society of London*, Vols. lxxxvi and lxxxvii, but merely to enumerate herein the general results which were in this way obtained.

The prognosis of epilepsy, and the conditions which influence it, will be mentioned under the following headings: (1) The influence of sex; (2) Of an hereditary disposition; (3) Of age at the onset of the disease; (4) Of the duration of the disease; (5) Of the frequency of the seizures; (6) Of the character and time of the seizures.

(1) *The influence of sex.*—Sex plays little part in the general prognosis of epilepsy. Rather more males than females show arrest of the seizures, but, at the same time, the former sex gives a greater percentage of confirmed cases. As regards the influence of sex upon the mental condition in epilepsy, it would appear as if a larger percentage of women escape the deteriorating influence of epilepsy upon the mind than men, but that when dementia supervenes and reaches its most pronounced form, a somewhat higher percentage of women are affected. The most frequent mental condition in male epileptics would seem to be a slight impairment of the memory and a blunting of the higher mental faculties.

(2) *The influence of an hereditary disposition.*—The only hereditary maladies taken into consideration in this investigation were epilepsy and insanity. It would appear from the investigation that the following general conclusions may be drawn: (*a*) That there is as great a chance of arrest of epileptic fits in those who have, as in those who have not, a known family history of epilepsy; (*b*) In those who have an hereditary history the chances as to whether the fits become arrested, improved or confirmed are in any given case about equal. (*c*) That as regards general improvement, more is to be expected in those who have no hereditary disposition, while a considerably smaller percentage of confirmed epileptics is to be found amongst those who have no family predisposition to the disease. As regards the influence of an hereditary disposition

*Read at the Fourth Annual Meeting of the National Association for the Study of Epilepsy, Nov. 22, 1904.

upon the mental characteristics, the fact may be stated that a family disposition to epilepsy or insanity exerts to a great extent a deteriorating influence upon the mental condition of those who subsequently develop epileptic seizures. So that a general statement may be made that a family tendency to either epilepsy or insanity, though offering no obstacle to the arrest of the seizures in favorable cases, materially increases the likelihood of the disease becoming confirmed and the supervention of dementia.

(3) *The influence of age at the onset of the disease.* — The main conclusions to be derived from a study of the statistics, with special reference to this point, may be stated as follows: (*a*) That epilepsy commencing under ten years of age is least favorable for arrest or improvement, and most favorable for the production of confirmed cases. In a similar way a low percentage of mentally healthy individuals is to be found amongst those in whom the disease commences in early childhood. This class also contains a high percentage of cases showing profound mental impairment. (*b*) In those in whom the disease commences during the period of puberty is to be found the greatest percentage of arrests and the lowest percentage of confirmed cases, in which class also is observed a greater percentage of cases showing slight mental deterioration, and a smaller percentage showing marked mental deficiency.

The cases of epilepsy, which commenced between the twenty-first year of age and the age of thirty-five, showed a steady diminution in the percentage of arrests and a progressive increase in the percentage of confirmed cases. But after the latter age, there is again a diminution in the number of confirmed cases, while senile epilepsy is essentially a tractable disorder.

From the above, the following general statement may, therefore, be made: Epilepsy commencing in infancy and childhood is the least favorable for arrest of the fits, and the most favorable for the production of the confirmed disease. The common type of epilepsy, or that commencing during puberty, is the most favorable form of epilepsy, both as regards the arrest of the seizures and the absence of mental infirmity. Adult epilepsy is unfavorable, but senile epilepsy is tractable.

(4) *The duration of the disease.* — Speaking in general terms, the earlier a case is brought under systematic treatment, the more hopeful the prognosis and the greater the probability of improvement. There is a greater prospect of arrest or improvement during the first five than during the second five years of the disease. Under five years' duration there is a considerably greater percentage of cases with no mental impairment, or merely slight interference with the memory, than of those with well-marked mental deficiency. Arrest of the fits may take place in cases even after a duration of from twenty to thirty years, although on the whole there is a progressive tendency for epilepsy to become confirmed the longer the disease lasts without definite treatment. Although the duration of epilepsy from the commencement of the seizures is a potent factor in determining the subsequent mental condition, it should be pointed out that in a few cases the disease may have lasted for periods of thirty or more years without the development of any obvious mental impairment.

(5) *The frequency of the seizures.* — As regards general prognosis, it may be stated that the longer the interval between the attacks, the greater the prospect of arrest or improvement. Very infrequent attacks are eminently favorable; attacks which occur every three or four months, or once or twice a year, are within certain limits, of more satisfactory prognostic importance than those which may be counted by the month, the week, or the day. The greatest percentage of confirmed cases, and the smallest percentage of arrested cases are found to occur in those epileptics who are subject to daily and weekly attacks. As regards the influence of the frequency of the seizures upon the mental condition, the general statement may be made that there is a direct relationship between the frequency of the seizures and the degree of mental impairment. The more frequent the attacks, the more common and profound the associated dementia. Nothing more forcibly illustrates the severity of the disease than the frequency of the attacks. For in addition to the close association between the frequency of the seizures and mental deterioration, there is a remarkable relation between frequency and arrest of the fits. Attacks which recur every three or four months, or once or twice a year, show the highest percentage of arrested and the lowest percentage of confirmed cases, as well as no cases of mental debility; while the attacks which recur so often as several times a day show no cases of arrest, and no cases of mental integrity.

(6) *Character of the seizures.* — The kind of attack to some extent modifies the prognosis. It is a matter of common knowledge that the major attacks are more readily influenced by drugs than the minor seizures. It was clear from the statistics that the greatest percentage of arrests was found in cases of the grand mal. Then followed the cases of the combined grand and petit mal, while the least favorable were the cases of the petit mal occurring alone. As regards the mental condition, it was noted that mental deterioration was found in association with both types of seizure, but its presence was less frequent in those cases in which the grand mal was the main expression of the disease. Freedom from mental impairment was also found in both types, but to a minimal extent in those cases characterized by the petit mal, whether alone or in conjunction with the grand mal.

The mind was more frequently affected to a slight extent in those cases in which the petit mal seizures occurred alone, and lastly, the mind attained its most universal and profound impairment when the disease was manifested by a combination of the grand and petit mal attacks.

LONG REMISSIONS IN EPILEPSY.

It is well known that remissions are a frequent if not a characteristic feature of this disease. The common remission, which takes place during childhood, in those whose fits commence in infancy, then cease for a time, and recur at or about the time of puberty, is one of the most remarkable features of the disorder. An interval of several years not infrequently occurs between the first and second attacks, while numerous instances may be cited in which periods of five, ten or fifteen years have been known to elapse between epileptic seizures. Wharton Sinkler records a remission of twenty-nine years in one of his cases. The present series of cases revealed a number of instances, in which remissions were observed and which persisted for several years, but were succeeded by a return of the characteristic seizures, as shown in the following table:

	Years observed	Cases
Remission of from	2 to 3	1
" "	3 to 4	2
" "	4 to 5	4
" "	5 to 6	2
" "	6 to 7	2
" "	7 to 8	1
" "	15	1

It should be pointed out that in all the above cases the disease had been fully established for some years, and that the intervals, therefore, did not correspond to the prolonged periods sometimes found between the first and the second fits, to which reference has already been made.

Two points especially call for attention in this connection. On the one hand long remissions may occur under bromide administration, to be followed by a relapse when the drug is omitted. On the other hand, a remission of long duration may be broken by an accidental circumstance, such as a blow upon the head, a fall, childbirth, or an acute inflammatory disorder. Hence it is apparent that long periods of arrest, though as a rule indicating a favorable prognosis, are not synonymous with the cure of the disease.

IS THERE A CURE OF EPILEPSY?

This question may in general terms be answered in the affirmative. Although writers upon epilepsy are generally agreed as to cure of the disease, there is less general concensus of opinion as to what is the definition of " cure," that is to say, after what period of arrest a cure may be said to have taken place. The following table shows the number of cases of arrest and of remission, and their duration:

Cases of arrest	Remission	Years duration
11	1	2 to 3
18	2	3 to 4
10	4	4 to 5
10	2	5 to 6
5	2	6 to 7
8	1	7 to 8
8	0	8 to 9
4	0	9 to 10
5	0	10 to 11
2	0	11
2	1	15
1	0	22
1	0	25

The arrest column shows that the greater number of the cases, that is to say 71 out of the total of 86, were observed for a period of from two to nine years, during which no fits occurred, while of the remission cases, although four showed an arrest of from four to five years, in five a relapse occurred up to eight years, after which time only one was found to relapse. With these results I have thought it unsafe to regard as cured any case of epilepsy in which the seizures have been in abeyance for a period of less than nine years after the disease has become satisfactorily established.

In order to obtain the percentage of cures in the present series, those cases only have been taken which were under observation for a period of at least nine years. They form a total of 147, of which 15 were arrested for nine or more years, giving a percentage of 10.2 cures.

Therefore, although it may be laid down as a general rule that a cure of epilepsy has been established after an arrest of nine years, the fact must be borne in mind that a very small percentage of cases *do* relapse after that period.

A further point of great importance lies in the fact that if any given case of epilepsy is capable of amelioration, a satisfactory response will be apparent within a short time of commencing treatment. Of the series of cases in which the disease was arrested, somewhat over 50% showed arrest within one year of treatment.

There is a striking harmony between the result obtained and the percentage of cures, amongst those authors who have based their observations upon a clear definition of the term " cure of epilepsy," as the following shows:

Author	Definition of cure	Percentage
R. Reynolds	Freedom for 4 to 8 years	10.0%
Habermaas	5 to 10 years	10.3%
Turner	9 years	10.2%

A STUDY OF THE BIRTH-RATES, GENERAL DEATH-RATES, AND DEATH-RATES FROM CANCER FOR THE NEW ENGLAND STATES FOR THE YEAR 1900.

BY WILLIAM F. WHITNEY, M.D., BOSTON.

In a study of vital statistics the number and character of the population should be considered first, and in that of New England the following are the striking features. Taking the entire area it has, in round numbers, 5,600,000 persons, of which Massachusetts has a little more than half (2,805,346). The character of that of the three northern states, Maine, New Hampshire, Vermont, is essentially rural; that is, the families are scattered or living only in small aggregations. In the three southern ones, Massachusetts, Rhode Island and Connecticut, while there is still a rural element, the large cities and manufactories impress upon it an urban character. The influence of these elements cannot, however, be clearly shown as yet from the incomplete character of the statistics, and the only index

which can be used to arrange them for comparison is the density of the population. This, as given in the Report of the Twelfth Census, is as follows:

TABLE I.

DENSITY OF POPULATION. 1900.

Maine.	Vt.	N. H.	Conn.	Mass.	R. I.
23.2	37.6	45.7	187.5	384.9	407.

From the above it appears that there is a wide difference between the two halves, and that the order in each half varies slightly from the geographical sequence.

It will not be of general interest to give all the figures by which the rates have been calculated, but only the final results. But it should be stated here that they are all based upon the average of five years with the year 1900 as the middle point.

The birth-rates which are given in Table II will be considered first. These are given in two ways. First, the proportion of births to every thousand persons living at all ages; second, and more accurate, for every thousand women within the child-bearing period, *viz.*, fifteen to fifty years of age. For both of these the average of the births for five years have been used.

TABLE II.

BIRTH-RATES. 1900.

	Maine.	Vt.	N. H.	Conn.	Mass.	R. I.
For 1,000 persons,	20.4	21.2	20.0	22.8	25.7	25.7
For 1,000 females (15–50)	82.4	85.8	76.0	83.7	88.8	89.9

The object of expressing the birth-rate in the first way is to have a means of estimating the excess of births over deaths. If this is done here it will be found that the northern half does not make as good a showing as the southern. The average birth-rate for the former would be about 20.5 and the average death-rate for all ages would be about 16.5; while for the latter it would be about 24 and 17 respectively. Even at the best this shows a very small rate of increase for our native-born population.

When the productiveness of the females of the child-bearing age is compared there is found to be only the difference of seven between those of the thinly settled state of Maine and the thickly populated one of Rhode Island. The extremely low rate of seventy-six for New Hampshire raises the suspicion that the registration of births is not as complete in that state as in the others. Or, if it is so, then it calls attention to the need of further study to determine the underlying social or other conditions which have brought about this result.

In a previous article[1] it was stated that the birth-rate for Massachusetts had fallen from 97.6 in 1850 to 91.5 in 1875, and to 88.8 in 1900. On looking at the above table it will be seen that only in Rhode Island is the rate even a very little higher. It is extremely probable, therefore, that the rest of New England has fallen off equally during the last fifty years, and when the influx of foreigners, with as a rule a high birth-rate, is taken into consideration the decrease in the old native stock must have been very much greater even than would appear from the above figures, a fact that is greatly to be deplored. When compared with foreign countries our birth-rates are low.

In the article already quoted the death-rates for Massachusetts for the years 1850, 1875 and 1900 were compared and it was found that a marked improvement had taken place in those of the earlier periods of life. It would be very interesting to see if this was true for the other New England States, but unfortunately their statistics are wanting or unreliable for the earlier years. The best that can be done, therefore, is to compare their quinquennial average for 1900 with that of Massachusetts as the standard. But even now the lack of uniformity in the published reports makes a very close analysis impossible. In those of two of the states, Vermont and Connecticut, the sex is not given for the different age periods, and in the absence of this fundamental fact, a comparison based on the total number of persons at each decade is alone possible.

The mistakes that can arise when this only is used have been dwelt upon before (*loc. cit.*). It is to be hoped most sincerely that the persons having the charge of compiling those statistics will have this defect remedied, for it is a pity that the states' money should be spent to publish a treasury of information, but to unlock which a key has not been furnished.

In the following table the rate for the first year of life is obtained by using the average of births instead of the number living for that year as returned by the Census since it has been found that this is always too low:

TABLE III.

DEATH-RATE FOR ONE THOUSAND PERSONS LIVING AT EACH AGE PERIOD. 1900.

Age	Maine.	Vt.	N. H.	Conn.	Mass.	R. I.
0	115.20	144.44	141.94	143.29	146.84	160.70
1	13.30	10.49	16.79	15.62	19.02	21.35
5	3.79	2.95	3.90	4.07	4.38	4.40
10	4.00	3.60	3.68	3.62	3.64	3.84
20	6.86	6.38	6.20	6.39	6.78	7.14
30	7.64	6.91	7.19	8.11	8.53	8.88
40	9.14	9.05	9.51	11.30	11.70	12.67
50	14.92	14.80	16.43	19.30	20.32	23.27
60	30.81	30.71	32.74	36.21	39.45	42.84
70	71.56	74.96	74.14	76.81	83.34	91.37
80	178.20	179.90	180.20	188.20	186.84	195.28
0—5	35.10	40.40	43.60	44.30	50.40	55.40
Over 30	22.67	23.05	22.86	21.15	21.80	23.05
All ages	16.00	16.72	17.02	16.31	17.20	18.24

On examining the above table it appears that the extremes are Maine and Rhode Island, while the figures of the other states are very close together. There is an old adage of statisticians that a high birth-rate also gives a high death-rate for the first year of life, and this is certainly borne out by the figures of the states just men-

[1] A Comparative Study of the Death-rates for the State of Massachusetts for the Years 1850, 1875 and 1900. BOSTON MEDICAL AND SURGICAL JOURNAL, May 19, 1904.

tioned, but if New Hampshire is taken into account which had the phenomenally low birth-rate of 76, its death-rate of 141.9 is well up to the average.

When the ages up to five are taken together it is interesting to note that the death-rate rises in the order of the density of the population. A further curious coincidence is that the death-rate for England and Wales for the year 1900, for the same age period, is 56.5 and the density is given as 558, the former figure practically coinciding with that of Rhode Island. Of course, any wide generalization from this is out of the question. The remaining age periods have still to be considered. From five to ten the three more thinly populated states have a slightly lower rate than the others, from ten to forty there is practically no difference, while from that time on each separate decade appears to be decidedly in favor of the more rural communities. When, however, the ages are taken in the aggregate these differences are lost sight of.

A great deal has been said about the increase of cancer of late years in different parts of the world, and the statistics of Massachusetts for fifty years were studied and they showed an apparently great increase. They were brought down to 1895, and the rates for the other New England States were also given for that year.[3]

The following table gives the rates for 1900, and in this those for ages below thirty years are included also. They were not given in 1895.

TABLE IV.

DEATH-RATE FROM CANCER FOR ONE MILLION PERSONS LIVING AT EACH AGE PERIOD. 1900.

Age	Maine.	Vt.	N. H.	Conn.	Mass.	R. I.
0	15	23	9	21	21	12
20	68	69	40	56	55	59
30	296	229	248	248	299	294
40	845	704	725	835	1,019	1,042
50	1,852	1,604	1,981	1,952	2,218	2,328
60	3,135	2,748	3,115	3,167	3,701	4,066
70	4,786	4,850	4,427	4,486	5,265	5,435
80	6,422	7,126	5,852	7,382	6,290	6,581
Over 30	1,706	1,566	1,594	1,432	1,578	1,671
All ages	800	744	767	649	710	732

To begin with, let us compare the crude rates for all ages and for all over thirty years of the different states. In each of these Maine has the highest and Connecticut the lowest. If the different age periods are taken it appears that up to forty years Maine leads slightly and after that epoch Rhode Island takes the first place. In a general way it may be said that viewed by decennia the rates of the northern group are a little under those of the southern. But it is to be remembered that in order to do away with fractions the rates are on the basis of a million living at each age period, and that three decimal places should be pointed off to make the scale coincide with the general death-rate based on one thousand. If this is done it will be found that the greatest difference between the highest and lowest in any one decennium is one and a half, or about one seventh of one per cent, a difference that is easily within the limits of error of registration. There is really a remarkable uniformity throughout the whole of New England, and this too when it is recalled that the tabulations have been made in communities with populations varying from 428,000 (R. I.) to 2,800,000 (Mass.).

The last table gives the difference between the figures of 1895 and 1900. Unless the minus sign is used, the numbers are understood to stand for an increase.

TABLE V.

N. E. STATES. DIFFERENCE BETWEEN THE CANCER DEATH-RATES FOR ONE MILLION PERSONS LIVING AT EACH AGE PERIOD, FOR 1895 AND 1900.

Age	Maine.	Vt.	N. H.	Conn.	Mass.	R. I.
0, 20	Not calculated in 1895.					
30	16	30	—15	—1	0	—19
40	55	26	—57	—38	—300	38
50	278	346	559	319	78	600
60	363	589	659	552	229	1,022
70	580	1,493	451	1,272	757	1,212
80	1,352	3,691	1,918	3,424	1,374	1,680
Over 30	230	360	218	228	76	222
All ages	104	167	102	89	40	149

From the above it appears that each of the states has made a gain all along the line except occasionally in the earlier decennia. But Massachusetts is far below the others, whether the crude rates for all ages and over thirty or the single decennium are scrutinized. It is hardly to be believed that the greater gain in other states is due to a real advance in the disease itself, but simply to more careful registration which has now brought their vital statistics up to the standard of Massachusetts; and we will venture the prophecy that the tabulation for 1905 will not show any such difference as this one.

One other point has come out clearly and that is the increment for Massachusetts is the lowest except two for any five years since 1850. If cancer is really increasing it is of the greatest importance to know how fast.

The tables for 1895 show that the rate for all persons over thirty years of age was four times as great as that of fifty years before. This might be interpreted to mean that the rate doubled every twenty-five years, or it might be assumed that this had been reached by a regular progression, which it was found would be 112 for each quinquennium. If the rate of 1895 were to be again doubled when 1920 was reached it would certainly be expected that the amount for the first five years of that period would be above that of the regular progression for the preceding half century. It is, therefore, a good omen when it is found to be greatly below the average, in fact only 76.

It will probably be many years yet, even with modern accuracy, before the truth as to the alleged increase of cancer will be known. It is even possible that it will appear then that at the close of the last century we were on the crest of

[3] Alleged Increase of Cancer in Massachusetts. The Shattuck Lecture. Proceedings of Massachusetts Medical Society, 1901. Statistics of Cancer for Massachusetts. Thirty-second Annual Report of the Massachusetts State Board of Health for 1900.

a cancer wave, to the apparent height of which more accurate diagnosis and registration had contributed greatly, and the commencing recession of which is foreshadowed by its slight increase in Massachusetts for the quinquennium of 1900.

THE EFFECT OF TUBAL ABSCESS UPON THE POSITION OF THE URETER.

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IT is the purpose of this paper to present the results of the investigations of the writer upon the relations of the ureters to collections of pus in the Fallopian tubes, with especial reference to the operation of vaginal section for drainage.

The operation is necessary, as a palliative measure, in many of the cases admitted to our wards in the Boston City Hospital, and while often only palliative; yet in a certain proportion, recovery takes place without further operative treatment. Occasionally, in cases with a slight amount of exudate, it is possible to dissect, layer by layer, until the abscess is reached. As a rule, however, the pelvic organs are displaced to a greater or less degree and the structures so filled with inflammatory exudate, that after incision of the vaginal mucous membrane, no anatomical landmarks can be recognized. If the pus bulges into the vagina or lies close to its side, why do we not injure the ureters from time to time? Although finding no report of this accident during vaginal section, our experience shows that there is a possibility of such an accident and also the reason for its infrequency.

The portion of the ureter which concerns us in this article lies on the pelvic floor under the broad ligament, and approaching the cervix, is situated about ½ to ¾ inch distant from it, at the level of the internal os. From this point it gradually nears its fellow of the opposite side over the lateral and upper surfaces of the vagina, before entering the bladder wall. It would seem quite possible that this part of the ureter might be displaced by the pressure of inflammatory masses from above and lie directly in the path of the incision.

RESULTS OF INVESTIGATIONS.

I. UPON THE LIVING.

In 25 patients with abscesses of the Fallopian tubes bougies were placed in both ureters if possible; although in some instances it was not feasible, owing to the displacement and swelling of the bladder wall and the condition of the patient. Then a combined examination was made in the lithotomy position to determine the relation of one or both ureters to the cervix, to the abscesses, and to the median line of the pelvis.

Of the 25 cases examined, both ureters were catheterized in 16, and in the remainder, catheterization was performed upon the side with the larger mass. In every instance, except some figured and mentioned later as anomalies, in which there was an abscess of any size, the ureters were more distant from the cervix than normal. In some the uterus was displaced — serving to increase the gap between the two structures. As a rule the ureters lay under the outer ends of the abscess cavities, as in Fig. III; but in Fig. IV, both were above.

Once, the ureter was found crowded inward onto the posterior cul-de-sac and would have been severed by any incision except in the longitudinal axis of the vagina directly behind the cervix. The greatest distance found between cervix and ureter was 1½ inches, with the uterus in the mid-line of the pelvis. The broad ligaments were always infiltrated when a tubal abscess was present.

The cervix, when in its normal position, forms the best landmark for the estimation of displacements of the ureter, as after the insertion of the bougie, the ureter is easily felt running along its side and can often be traced nearly to the pelvic brim. When the cervix is pressed toward either side of the pelvis, however, it seems to widen the distance between itself and the ureter of the opposite side, without very appreciably decreasing the space upon the same side. This has been noted several times in pelves where no acute inflammatory condition was present. Thus in using the cervix as our most available guide, abnormalities of its position must be considered, if present, or apparent may be mistaken for actual displacement of the ureter.

FIG. I. This shows diagrammatic course for normal position of ureters.

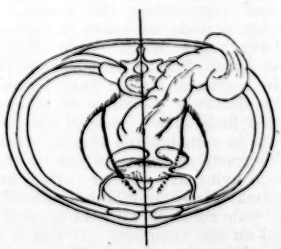

FIG. II. This shows small abscesses lying behind and only slightly to the side of the uterus, but so small that they did not affect the position of the ureters. The uterus was in the median line, small and somewhat movable, indicating that the broad ligaments were not much infiltrated.

Fig. III. The left ureter, displaced, lay under the outer edge of the mass, which was about the size of a lemon. The right ureter was not displaced. The uterus was in the mid-line of the pelvis. The broad ligament on the left was much infiltrated. This shows the usual displacement of the ureter.

Fig. IV. An unusual condition. The ureters lie above the abscesses. The mass on the right was the size of a lemon; the one on the left about that of an English walnut. Both ureters are displaced, but the left only slightly. This patient recovered without operation.

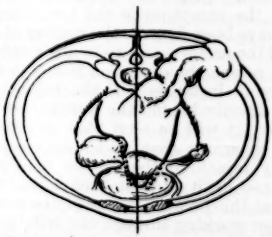

Fig. V. An unusual case. The ureter lies close to the cervix and passes beneath the abscess, being forced downward and inward on to the posterior cul-de-sac of the vagina. An incision into this mass would have divided the ureter. The abscess was the size of a large hen's egg and bulged into the vagina. The left tube was only slightly enlarged.

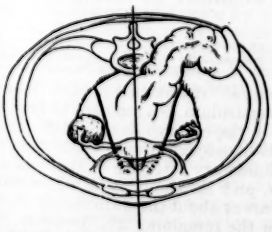

Fig. VI. The abscess was about the size of an orange, high in the pelvis and almost entirely in the ovary. The mass was movable. On account of the seat of the abscess and lack of induration of the broad ligament the ureter was not disturbed. The uterus was in the mid-line of the pelvis and the left tube was not enlarged, but the broad ligament thickened.

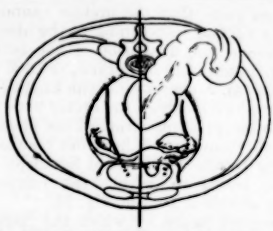

Fig. VII. Apparent displacement of right ureter. The uterus is drawn to left and the ureter of the same side is forced outward by the somewhat distended tube. The displacement of uterus increases distance between cervix and right ureter.

Tables of figures are of little value in the presentation of this subject, as the pelvic conditions vary to such a degree as to make tabulations of little value to one who has not seen the cases themselves. For this reason, only diagrams of the pelves illustrating the changes found are given; trusting that in the light of these, as well as certain experiments upon the cadaver, the conclusions as to etiology may seem justified.

II. Upon the Cadaver.

Unfortunately it is impossible upon the dead to successfully imitate the condition of acute inflammation in the living, or to produce the distention of the Fallopian tubes which we find in life. Hence such experimentation gives us only a clew as to the manner in which these displacements are produced.

My observations upon the cadaver show:

(1) Traction upon the broad ligament toward the side of the pelvis draws the ureter outward.

(2) Distention of the Fallopian tube by injections under pressure into its lumen, causes it to straighten in the same manner as when water is forced into a rubber hose.

(3) Injections into the broad ligament produce no effect upon the ureter.

(4) Drawing the uterine body toward the side of the pelvis does not affect the ureter unless the cervix and upper portion of the vagina are pulled strongly to one side. It then follows to a slighter degree.

Etiology.

The usual position of tube and ovary in the virgin are too well established to call for any discussion here; while according to my observations, they have approximately the same relations in the greater number of multiparæ in whom there is no uterine displacement or disease of the appendages. With the advent of inflammatory conditions, however, the thickening of the tubes and the increased fluid in their lumen cause their outer, posterior half to gravitate into Douglas' cul-de-sac in the majority of cases. Here they become adherent, the fimbriated extremities firmly close, and the tube distends. The ureters must of necessity become more or less fixed in the mass of exudate which usually fills the broad ligaments. In some instances

this is so great that the ureters cannot be felt from the vagina. According to the observations noted above, the distention of the tube causes it to straighten from its curved, relaxed position. As it does so, it draws upon the broad ligament, which in its turn carries the ureter with it. This seems to be one explanation of the phenomenon. Small collections, which have not reached a sufficient size to affect the broad ligament, seem to have no power to disturb the relations. An example of this is seen in Fig. II.

The second means by which the displacement may be brought about is by direct pressure of a collection of pus in the end of a tube which lies nearer the median line than the ureter. The slowly increasing distention and pressure force the ureter directly outward as the mass increases in size. Naturally, we may have a combination of both; and this, in all probability, is usually the rule.

There remains to be accounted for, the displacement of the ureter where the tube is not in Douglas' sac, but stretches outward from the side of the uterus. These would seem to be cases in which the tube was not in its normal position and where early or previous closure of the fimbriated end has changed the tube into a sac. Here the displacement of the ureter is probably due solely to traction upon the broad ligament by a distended tube. This view is rather borne out by Fig. VI, in which the ovary was the principal seat of the purulent focus, while the broad ligament was not infiltrated to any extent, and only the fimbriated end of the tube concerned in the abscess. It will be seen that in this case the ureter was not displaced. Even in this instance had the ovarian abscess been of such size as to put the broad ligament upon the stretch, there is no reason why displacement, similar to those in which the abscess was in the tube, should take place. To accomplish this, the abscess would need to be of such size that it would force the ureter inward, rather than exert any outward traction.

Whether the lack of infiltration had any bearing on the position of the ureter, it is impossible to say, as it has always been present in my other cases. Experiments upon the cadaver in this particular were negative, as the condition in life could not be even approximately simulated.

The methods which we have considered hold for what may be called the normal displacement, found in nearly all cases. Unfortunately, under certain circumstances the exact nature of which is more or less of a mystery, the ureter is forced inward on to the posterior cul-de-sac of the vagina. This condition is shown in Fig. V. In such an event the ureter would be endangered by the usual incision, unless conducted with extreme care and with its relation previously determined. When this happens, it seems reasonable to presume that either from previous inflammatory processes in the broad ligament or because of adhesions, the distending tube is unable to straighten itself sufficiently to exert traction or that the broad ligament is too much thickened to admit of stretching. If this takes place, the ureter might be forced downward by the abscess forming in the convoluted tube above. Fortunately this is rare, as in numerous observations we have found only this one instance.

In one patient the ureters were found above the pus cavities, but still displaced outwards. (See Fig. IV.) No reason for this can be given, unless the abscess worked underneath the ureters from the pouch of Douglas.

CONCLUSIONS.

In the foregoing article it has been my aim to show:

(1) That small collections of pus in the Fallopian tubes do not displace the ureters.

(2) That larger collections displace the ureters, (*a*) Outward generally, whether the ureter is above or below the mass. (*b*) Downward rarely, on to the posterior cul-de-sac.

(3) That such displacements are probably due to, (*a*) Traction upon the infiltrated broad ligaments by the distended tubes: the ureter moving with the broad ligament. (*b*) Direct pressure from the growing abscess, forcing the ureter in the direction of least resistance. (*c*) A combination of both.

Previous to the investigation of this subject the operation of vaginal section has seemed to me a somewhat haphazard procedure, but in the light of what has been found, our lack of accidents seems quite fully explained.

With the exception of the few unusual cases which have been figured, the manner of displacement of the ureter seems to be quite definite, and for this reason the operation is safe in the great majority of instances. If the vaginal vault is incised directly behind the cervix, even if this is displaced, it will be seen from an examination of the diagrams that under no circumstances will any injury to the ureters take place. If the abscess cavity does not reach the wall of the vagina at this point, it can easily be opened with the finger working through the cellular tissue of the broad ligament, toward the side on which the abscess lies.

THE SURGERY OF MECKEL'S DIVERTICULUM.*

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MECKEL'S diverticulum, also known as a true diverticulum, is a remnant of fetal life which existed in the embryo as the vitello intestinal or omphalo-mesenteric duct. This duct connects the rudimentary intestine to the yolk-sac in the embryo, and in about 98% of human beings disappears at about the sixth month of embryonic life. In the remaining 2%, however, it fails to become obliterated, and this fact is of sufficient importance to warrant a careful study and consideration of the subject. This congenital defect

* Read before the Rhode Island Medical Society, Dec. 1, 1904.

was first clearly and accurately described and shown to be the cause of intra-abdominal disease, in an essay by John Friedrich Meckel, in 1812, although during the previous century various observers had noted and called attention to diverticula arising from the intestine.

It may arise from any point of the intestinal tract between the pylorus and the cecum, but is most commonly found involving the ileum within four feet of the ileo-cecal valve. Its origin may be from the free border of the gut opposite its mesentery, from the lateral walls of the gut, or it may be intramesenteric. Its lumen connects with the interior of the intestine, and its distal end may be free, sometimes ending in a fibrous cord covered with peritoneum. This distal end, however, may be attached to the umbilicus, abdominal wall, mesentery or colon. Its average length is about two and one-half inches, but it varies from a slight projection to a length of ten inches, and the diameter at its base is usually less than the diameter of the gut to which it is united. The diverticulum may be patulous throughout its entire length, and in this variety of diverticula, with the distal end attached to the umbilicus, an umbilical fecal fistula may result. Another variety of diverticula is patulous for a short distance, with the remainder, a cord varying in size from an eighth to a fourth of an inch in diameter. This sort of diverticula communicates with the intestine only, since the free end is closed and cord-like in appearance, and intestinal obstruction with its attendant train of symptoms may follow, should this band constrict a coil of intestine. Circular constrictions may be present producing irregular distention or pouches, and if the compression is complete a cyst may result. Occasionally a valve may be found partially closing the opening into the intestine, similar to the ileo-cecal valve. The order of frequency in which we find the cord-like distal extremity attached is as follows: the mesentery of the intestine, the umbilicus, and lastly the abdominal parieties.

Meckel's diverticulum has been found a number of times in a hernial sac, either alone or accompanied by some portion of the ileum to which it was attached. The omphalo-mesenteric vessels may be found accompanying it. A diverticulum may cause intra-abdominal disease by intussusception of the diverticulum, or by chronic inflammation and gangrene of its walls. Perforation due to ulceration of a Peyers patch in the diverticulum has been known to cause death during an attack of typhoid fever.

The ileum may be caught in a loop formed by this appendage causing intestinal obstruction. Volvulus of the ileum may result from traction of a diverticulum, especially when the distal end is attached to the umbilicus, or a loop of intestine may pass under the cord-like portion and volvulus may then take place. Kinking and acute flection of the ileum at the point of attachment of the diverticulum may also occur.

Torsion of the diverticulum has been found and strangulation of the ileum is far more common when the diverticulum is attached at both ends, than when one end is free. Adhesions from attacks of localized peritonitis, due to an inflamed diverticulum, may cause secondary obstruction in the gut and the diverticulum may act as a band constricting a loop of intestine that has fallen beneath it.

The symptoms of disease of Meckel's diverticulum may resemble those of acute fulminating appendicitis, since this appendage is most frequently found in the lower right quadrant of the abdomen and on account of its resemblance anatomically to the vermiform appendix. The previous history is usually negative. The onset of the disease is sudden, the patient being seized with pains extending all over the abdomen, the greatest intensity being about the umbilicus. The pain is paroxysmal in character and at times the increased peristalsis is so marked that the movements of the intestine may be seen by abdominal inspection. In the late stage of the disease we may have intestinal paresis. Vomiting is an early symptom and, unlike the vomiting in most cases of appendicitis, it is continuous, instead of ceasing after the first day. The vomitus at first may contain food, later bile, and then become brownish in color with a fecal odor. Usually gas and fecal matter are not passed per rectum after the onset of the symptoms, unless it be that the colon is unloaded by rectal enemata.

The abdominal muscles are rigid, which is a prominent and important fact. The percussion note over the abdomen is usually tympanitic and may be dull in places, due to the varying contents of the intestine at the time of examination. The pulse is always accelerated. The temperature varies and is not a valuable guide as to the severity of the disease. The cardinal signs are: (1) Sudden onset. (2) Pain, general abdominal and paroxysmal in character. (3) Continued vomiting. (4) Absence of feces or flatus per rectum. (5) Rapid pulse. (6) Rigidity of abdominal muscles.

Previous to operating on cases where there has been persistent vomiting, or where one has reason to think that the stomach may contain food, lavage of the stomach should be practiced before etherization. This may be the means of saving life, although during an operation following lavage of the stomach, especially where there is intestinal paresis, the stomach may refill and the vomitus enter the trachea and cause death. Most of the acute abdominal affections require surgical intervention, and the patient's interest requires that the case be viewed from a surgical as well as a purely medical or internist's standpoint. In this particular condition early recognition of the disease is of the greatest importance, for there is a certainty of relief by employing timely surgical measures. The great mortality quoted, from 65 to 75%, following operations for intestinal obstruction due to a Meckel's diverticulum, is sufficient evidence to show that an early recognition and operation is absolutely essential to save life. The mortality, I believe, should not be more than 1% if the operation is

performed within twenty-four hours after the onset of the disease. The incision is preferably made in the outer border of the rectus muscle, for the wound may be enlarged to any extent, thus giving free access to the greater portion of the abdominal cavity. A few points to be borne in mind are, that there is occasionally a Meckel's diverticulum; that it may cause intestinal obstruction; that a surgical operation holds out the only hope for life, and an early recognition and operation are of the utmost importance.

A CASE OF INTESTINAL OBSTRUCTION DUE TO MECKEL'S DIVERTICULUM, OPERATION AND RECOVERY.

E. W., male, single, aged twenty-one years, occupation window dresser, was seen at his home in Valley Falls, R. I., in consultation with Dr. T. J. Smith, February 11, 1902. He has always been healthy and never has had an attack anything like the present one. Three days ago he was seized with general abdominal pains paroxysmal in character. He had chilly sensations, nausea and vomiting. The following day the pain was less severe and he had a small bowel movement. He traveled a distance of six miles to his home and on reaching there had a temperature of 103° and vomited a dark, brownish-looking fluid. The vomiting continued during the night.

Feb. 11, 1902. Pulse 130, temperature 102°, respiration rapid; anxious expression of countenance, general abdominal distention, rigidity of abdominal muscles and tenderness on both sides of the abdomen, with possibly the greatest point of tenderness a little to the right of the umbilicus. The diagnosis made was general peritonitis, probably caused by disease of the appendix. The patient lived in a small tenement house, amid poor surroundings, and yet his condition was so extreme that we decided to operate then and there, although a small and not over-clean kitchen was the best room available.

Under ether anesthesia an oblique incision three inches long was made in the right iliac region, the muscles separated, as in the gridiron method, and the peritoneal cavity exposed. Upon incising the peritoneum considerable turbid fluid escaped. The cecum presented and the base of the appendix was sought and found by following the longitudinal band on the cecum. It became necessary to enlarge the incision by three inches. An appendix five and one-half inches long was found adherent posteriorly to the cecum and ascending colon extending upward until its tip was on a level with the lower border of the liver. As the appendix was mutilated in freeing it from the cecum, it was removed, although there was no evidence of any recent inflammation of its coats. Its location and adherent condition I believe were due to a congenital defect.

The peritoneum was closed over the ligated stump of the appendix with a few Lembert sutures. Although the patient was in a precarious condition and we were giving normal saline solution subcutaneously, we determined to seek further for the cause of the general peritonitis. The ileum, markedly injected, was drawn out of the wound and about seven feet from the cecum was found an adherent mass composed of two coils of the ileum and a Meckel's diverticulum, the ileum was found distended above the adherent mass and collapsed below it, giving us a case of intestinal obstruction.

The diverticulum was equal in size to the terminal phalanx of an adult thumb, patulous throughout, the distal end was free. It was inverted into the lumen of the ileum and the edges of the depression in the bowel were united with Lembert sutures. The abdominal cavity was flushed with normal salt solution and the wound closed in layers with buried sutures, without drainage. Stimulants, both hypodermatically and per rectum, were freely given. He responded well to the stimulation, and until the seventh day his temperature ranged from 99° to 101°; at this time an intramural abscess was evacuated. He subsequently made a rapid recovery. After several months he complained of cramp-like pains in the abdomen.

Nov. 21, 1904. I learned from Dr. Smith that he is in good health, the abdominal pains having completely disappeared.

OPERATION AND DEATH.

CASE II. E. C. S., aged seventeen years, entered the Rhode Island Hospital Feb. 23, 1903. Three years ago he had an illness lasting five days. He was at this time seized with severe abdominal pain, intermittent in character and accompanied by vomiting. Pain was most marked to the right of the umbilicus.

Feb. 20, 1903. He was taken with cramp-like abdominal pains which gradually increased in severity, followed by vomiting. Bowels regular previous to this illness. Since then practically no movement, although cathartics and enemas were given. Vomited continuously. On February 22, the vomitus was dark brown while previously it was greenish in color. The odor was offensive and fecal. Feb. 23. Patient shows mental apathy, answering questions with hesitation. The abdomen is uniformly distended and rigid, but not especially tender on pressure. No visible peristalsis. No tumor by palpation. The abdomen is generally tympanitic except in places where there is slight dullness on percussion. Diagnosis, intestinal obstruction, due to a diverticulum.

Feb. 23, 1903. Operation. Ether. Incision along the outer border of the right rectus muscle beginning at level of the umbilicus and extending downward a distance of four inches. Upon entering the abdominal cavity free fluid was found. The intestine was distended and injected, showing an extensive peritonitis. The cecum with a normal appendix presented at the wound. While the ileum was being brought out of the abdominal cavity, at a distance of four feet from the ileo-cecal valve there was found a Meckel's diverticulum, arising from and having a patulous opening into the ileum, and being attached to the abdominal parieties beneath the umbilicus. The diverticulum was about 25 cm. long and 2 cm. wide. The distal third was cord like, the remaining two thirds being patulous. The diverticulum was so wound about a portion of the ileum that it acted as a band, causing a constriction and complete obstruction of the ileum at this point. The intestine above the point of constriction was greatly distended and that portion below was collapsed. The intestine showed hemorrhagic spots in the distended portions. The vessels were injected, producing a dark red hue of the intestine.

The distal end of the diverticulum, or that portion near the umbilicus, was cut between two clamps and the part close to the abdominal wall was ligated. The proximal end near its junction with the ileum was crushed and cauterized with Downes' Electro-thermic Angiotribe and removed by cutting through the desiccated strip left after the removal of the Angiotribe. The stump of the diverticulum was pushed into the lumen of the ileum and a silk purse string suture was used to approximate the peritoneum above. By this procedure no evidence of the diverticulum could be seen. The abdominal cavity was flushed with normal salt solution. The patient commenced to regurgitate

the stomach contents and his condition which was until now, first class, commenced to fail and color became cyanotic. The incision was rapidly closed in layers with chromic gut, cumol gut and silver wire. The stomach was washed out immediately after the operation and a foul-smelling, yellowish-brown, fecal fluid siphoned away. Magnesia-sulphate, 2 oz., was placed in the stomach with the aid of the stomach tube. The administration of stimulants and oxygen had no effect. The dyspnea became more marked, the cyanosis deepened and he died one-half hour after the operation.

His death was due to the entrance of the stomach contents into the lungs, as shown by the autopsy.

PERILOUS CALMS OF APPENDICITIS.

BY ROBERT WALLACE HARDON, M.D., CHICAGO.

THE patient died, who only a few hours before seemed to be doing so well, with a more normal pulse and temperature, with practically no pain, able to move about with comparative ease, and when those about him were led to think he was getting well. The surgeon who saw the case, before death, either refused to operate, finding a practically comatose patient, or operated only to find the results of a perforated appendix or the results of bacterial extension, affecting more or less and to a greater or less extent the abdominal contents, and the general system.

Deaver, in the JOURNAL, 1904, page 860, says: "Every physician has had one case of severe acute appendicitis, which may have caused difficulty in diagnosis, has referred the patient to a surgeon, stood beside the operating table and observed a highly-inflamed appendix, perhaps gangrenous, removed. And yet this same physician a few months or years later is called to see another patient in the throes of appendiceal colic, knows well what the disease may lead to, and yet gazes, fascinated as if by a rattlesnake, temporizes and dallies until the right iliac fossa becomes ripe and filled with pus."

Why was not the patient operated upon before, at a time when operative results by skilful operators show practically no deaths? First, because of the large percentage of recoveries without operation. Second, because the attending physician or the family or patient hope that this case will be one of a large majority of recoveries without operation. Third, after waiting some hours, or a few days, the patient is apparently improving, and recovery is taking place, with apparently more or less subsidence of the active inflammatory process. This apparent subsidence of symptoms, the more normal pulse and temperature, the lessened pain may be, and frequently is, the precursor of symptoms and conditions much more grave and menacing to life than the more active ones. It often is the treacherous calm to be followed by the death storm, if prompt action is not taken or allowed.

A few examples will serve to illustrate the subject before going further:

* Read at the Surgical Section of the Mississippi Valley Medical Society, Cincinnati, October, 1904.

CASE I. F. H., forty-four, male; saloon keeper. Seen Nov. 25, 1903, at noon. A large consumer of whiskey, but never drunk, using about a quart of whiskey daily for many years. Patient obese. Temperature 100° F; pulse 96. Arteries hard. Examination of abdomen revealed some pain on pressure, covering practically the entire region below umbilicus on right side. This area was also somewhat dull on percussion.

Ten days previous there was general abdominal pain, supposed to be neuralgic in character. For this an alkaline cathartic was given. Two days following the beginning of the attack, the pain became localized in the right inguinal region, *but was much less intense than at first, and remained in this region up to the time when I first saw the patient.*

No history of chills could be elicited. He was told that he had appendicitis, which had extended to the abdominal cavity, causing peritonitis with pus, and advised to go to the hospital at once and submit to operation. Refusing, he was advised to lie perfectly quiet, given a low enema, and all food and fluid by mouth cut off. Two days later he consented to go to the hospital, the treatment having given him no relief. On entrance at 5 P.M., his pulse was 96; temperature 101.8°; respirations 28. Operation was refused at that time. He was kept quiet and given enemata of normal salt solution, one pint every four hours, if awake, and nothing was allowed by mouth. The urine showed 1% of albumin, mixed hyaline and granular casts. The blood showed a marked leucocytosis, 29,000 being reported.

The second day in the hospital he had a chill at 2 A.M.; temperature of 104.4°; pulse 128. Temperature at 8 A.M. next day was 100.6°; pulse 100. At noon, temperature 99.4°; pulse 104. At 8 P.M., temperature 100.4°; pulse 90. The following day, after having been seen by two of my colleagues at the hospital, he was operated upon, it being considered his only chance. He died. The operation revealed a general peritonitis, with some slight adhesions in the right lower abdomen, holding over a quart of thick, foul pus, having a fecal odor; a sloughed appendix, with only the stump remaining. The treacherous calm had passed; the storm was on, and the wreck came.

CASE II. Miss D. S., twenty-six. This patient had been under my care at times for some years. Her past history as concerns this attack was of pain two years ago in the right lower abdominal region, thought to be ovarian, and for which no medical advice was sought.

On March 26, 1904, she ate some crab salad at a restaurant. The next day she had some discomfort in the right iliac region, and burning of her stomach. This was followed in a few hours by colicky pains in the right iliac region.

On March 28, she vomited twice. The family, thinking the trouble one of indigestion from the crab salad, gave her a cathartic, and applied antiphlogistine poultices and hot fomentations, with opium. The patient was first seen March 29, at 4 P.M., having a temperature of 102.8°, and pulse of 120. There was great rigidity of the muscles about the right iliac region, with pain most marked below the external to McBurney's point.

The diagnosis of appendicitis was made, and removal to the hospital advised. The family, still thinking that there was a possibility of indigestion, asked for and got a consultant. The diagnosis was confirmed, but although the patient had a fairly easily palpable abdomen, neither the consultant, Dr. Alfred C. Croftan, nor myself could feel the appendix, partly because of the muscular rigidity and partly because of its posi-

tion. She entered the hospital at 9 P.M., with a temperature of 100.2°; pulse 108; respirations 24. She was prepared for operation. On my return to the hospital at 10.30 P.M., the temperature was 100.2°; the pulse had dropped to 88, and there was no pain except on pressure in the right iliac region, and this was less than when first seen. *There was, however, greater tympany than when examined at nine.*

I advised operation at once. The family again referred to the crab salad, and said, "It is only a belly ache; see how much better she is." I insisted upon consultation, believing it to be a perilous calm, and it was granted. The consultant agreed with me that operation was imperative, and it was performed at about 1 A.M. The operation took forty minutes, because of many old, firm adhesions of the proximal third of the appendix, and many new of the distal two-thirds. It was a muscle-splitting operation, with skin incision 1¼ inches long. Later on the day of operation the pulse at 10 A.M. was 88; temperature 100.2°; respirations 24. At 6 P.M., pulse 86; temperature 98.4°; respirations 22. During the day she was given liquids by mouth. The day following she was slipped out of bed to use a commode, the pulse and temperature being normal, and two days following was rested in a chair out of bed. The patient left the hospital nine days after operation, following an uneventful recovery.

This one of two recently removed appendices I have brought here as being of sufficient interest to show. This appendix was placed well down on the internal part of the cecum, having a course first anterior, then upwards, then backwards, and downwards, the curved portion being that held by dense old adhesions.

Specimen from CASE II. About four fifths actual size. Lumen held open showing the two orange seeds.

Pathological report in part: Length, 5½ inches. The distal end is greatly enlarged, swollen, and of a dark purplish color, extending two thirds of the way up the organ to a point where a stricture is found almost obliterating the lumen. The capillaries and vessels over the surface are greatly distended. Upon opening into the lumen there were found two full-sized orange seeds. No free pus, but some fecal contents. The pathological histology of sections of this appendix shows extensive round cell infiltration throughout the mucous membrane, and glands almost entirely destroyed, as well as a part of the muscular coat in places. The blood vessels were dilated and congested. There was also an interstitial hyperplasia, showing that a chronic form of disease had existed prior to the last attack.

The picture shows an acute catarrhal condition, with extensive necrosis.

CASE III. Mrs. G. W. S., twenty-two years. First seen Aug. 6, 1904, at noon. Temperature 103°; pulse 124; respirations 26. She had marked pain in right iliac region, with rigidity of the muscles on both sides, less in left iliac region. She gave a history of difficult and painful micturition ten days before, with much swelling of the labia, which had subsided under the use of hot douches. Menstruation was normal. There had been no sickness since childhood, but she had not felt well since leaving Arizona in April. The day before, and at 2 A.M. on the day of visit, she had vomited three times, which was attributed to some medicine which had been taken. Vaginal examination showed some discomfort in vagina and tenderness of uterus and adnexa. A diagnosis of appendicitis and infection of uterus and tubes was made, and patient was sent to hospital.

Temperature at entrance at 3 P.M., 103.2; pulse 120; respirations 26. She was prepared for operation for appendicitis. Temperature at 8 P.M., 101°; pulse 110; respirations 24. Temperature at 11 P.M., 100°; pulse 90; respirations 24.

At this time the patient felt much better, *having a less rapid pulse and much lower temperature, but examination revealed increased rigidity of the muscles in the right iliac region*, and a particularly painful point below and external to McBurney's point. Vaginal smears showed gonococci. She was operated upon about midnight, and a slightly enlarged congested appendix containing in its distal end one large grape seed was found. The proximal end was somewhat constricted, so that it was barely possible to force through a probe from the distal end. A culture from the lumen showed a pure colon bacillus. An uneventful short recovery followed, she being in the hospital ten days. It is of passing interest to know that she last ate Tokay grapes in Arizona in April; also that her douche bag had been used by others using a common bathroom.

CASE IV. Mr. A. M., thirty; married. Fairly developed and nourished. Previous history: About one year previous to present attack was sick in bed for three weeks, with a diagnosis of typhoid fever, although no Widal reaction was found.

First seen, Oct. 17, 1902, at about 7 P.M. Facial expression drawn. Movements caused some pain in right inguinal region. He had been in bed two days; had not vomited, but the pain during the morning of the day seen had been very sharp and colicky. Pulse 103; temperature 102.8°; respirations 24. Pain on palpation of right inguinal region, while marked, allowed sufficient manipulation, so that the appendix could be felt about one and one-half inches outside and below McBurney's point. A diagnosis of appendicitis was made. The patient was sent to the hospital. Passed a good night, sleeping well. In the morning his pulse was 84, and temperature 99°, *but the face was drawn and tympany more marked than on previous night.* He was operated on in the morning, and an erect, highly-injected, congested appendix removed. Near the base, the lumen was entirely constricted, and

many old adhesions were separated, caused without doubt by the attack of the previous year, then thought to be typhoid. On opening the distended appendix it was found full of a thick, reddish-yellow pus. Cultures showed colon bacillus and staphylococcus.

The night following operation he got out of bed twice during the absence of the nurse to pass urine, and was allowed to get out of bed thereafter. The recovery was uninterrupted.

As briefly as possible, the aim of this paper is to try to reduce the unnecessary mortality due to a hope of recovery without operation. It has been tritely said that so many die of appendicitis because so many get well. Nothing could be more true. The one who gives advice against operation in this treacherous disease must assume a grave responsibility, notwithstanding the patient shows an apparent return to a normal condition, no matter what treatment is used. To say that he has never had a death without operation is only saying that he has been fortunate in not having cases that went on to ulceration, necrosis, perforation, peritonitis and general septicemia. The subsidence of one or more combination of symptoms may not mean recovery, but may mean a far more imminently dangerous condition for the patient. The pulse may return to normal and be of normal volume; the temperature may subside or go below normal. The pain may cease. The dead appendix knows no pain. "After the bowel perforates, all peristalsis rapidly ceases, and the silence of the grave broods over the abdomen." However, the treacherous calm is not a complete one. Something abnormal remains; greater tympany; accelerated pulse; increased pain; drawn facies; or increased muscular rigidity.

As long as the trouble is confined to the appendix, there is no immediate danger. But no one can tell when the trouble will extend to the peritoneum. There are no sharp lines to be drawn, and it is impossible to say when a peritoneum received its infection. Neither it is necessary for the appendix to be perforated for peritonitis and its sequelæ to occur.

These treacherous calms may come at any time during a few hours or days following the acute attack.

G. Dieulafoy well says: "Traitorous calms of appendicitis are often the cause of death. A temporizing or hesitating physician notices with eagerness the seeming defervescence of the trouble, wishing to put off or avoid surgical intervention, believing it will always be time to operate later, between attacks, but nevertheless there follow terrible accidents against which surgical treatment is of no avail, and the patient dies."

CONCLUSIONS.

(1) Defervescence of symptoms and apparent better condition of a patient do not always mean recovery, but may be the forerunner of a more dangerous condition.

(2) There being no specific for the disease, no matter what treatment is used, the one who procrastinates should shoulder the responsibility for the death.

(3) When a clear diagnosis is made but one treatment should be advised, that of operation as soon as possible under the conditions, or the golden opportunity may be forever gone.

(4) The physician who does not explain the great dangers of delay and the small comparative danger of operation is doing his patient a serious injustice, which often leads to fatal results.

(5) Operation at the proper time usually greatly shortens convalescence, and eliminates all danger from this cause hereafter.

(6) Procrastination is the greatest cause of surgical deaths, operation often being performed as a last resort, when but little hope of recovery exists.

Medical Progress.

REPORT ON OBSTETRICS.

BY FRANK A. HIGGINS, M. D., BOSTON.

THE IMPLANTATION OF THE HUMAN OVUM IN THE UTERUS.

MINOT[1] regards the discovery of the fact that certain tissues can attack and destroy others as one of the most important discoveries of recent years. He states that it is known that certain young tissues of the embryo are in part endowed with a capacity to destroy the tissues with which they come in contact. A tissue appears to produce a destructive agent, presumably chemical in character, from which itself does not suffer under normal conditions, but which will destroy other tissues with which it comes in contact. Present knowledge leads to the belief that such a phenomenon occurs in the early stages of the human ovum, and affords a fairly correct conception of the implantation of ova upon the wall of the uterus.

The ectodermal cells of the chorion increase in size and numbers by proliferation, and wherever they come in contact with the walls of the uterus destructive changes take place in the uterine tissue. To these ectodermal cells he applies the special name, *trophoderm*. Dr. Minot affirms that it seems scarcely too much to say positively, in the light of our present knowledge, that the function of these chorionic cells, the trophoderm, as the means of implanting the human ovum is demonstrated.

Observations indicate that the ovum becomes completely imbedded in the uterine mucous tissue and that the thickness of the mucous membrane at the time of implantation is a little greater than the total diameter of the ovum. The tissue of the uterus which lies adjacent to the ovum preserves its normal structure and shows no change. The idea is that the cells of the ovum dissolve or digest out and absorb the uterine tissue, making a place for the ovum which grows there, at the mother's expense.

[1] Gynecological Transactions, 1904.

The old idea was that the mucous membrane of the uterus was thrown up around the ovum, or grew around it, forming the decidua reflexa. The process of absorption also involves the opening of small blood vessels in the mucous membrane, with the escape of blood from the maternal vessels into the trophodermic or later intervillous spaces, and the establishment of an extravascular circulation at the very beginning of the implantation of the ovum in the uterus, and serves the purpose of nourishing the embryo.

VOMITING OF PREGNANCY.

Martin [2] delivered the annual address of the Cheshire Branch of the British Medical Association on this subject. He emphasizes the importance of keeping in mind the fact that vomiting may be due to phthisis or gastric ulcer coincident with pregnancy, and while he mentions no cases of these, he reports cases complicated by appendicitis, strangulated hernia, jaundice and cerebral embolism, also other cases in which abortion was induced. He classifies the cases as follows:

(1) Where the nausea or sickness is slight, with at the most retching occurring usually in the forenoon and passing away just before or when quickening takes place without producing constitutional disturbance.

(2) Where vomiting as well as nausea is a frequent occurrence, not confined to any period of the day and resulting in appreciable failure of the health and emaciation.

(3) Where vomiting is so constant and persistent that all food is rejected, rapid emaciation follows, with febrile disturbance, circulatory troubles, jaundice, dry tongue, quick pulse, delirium, and threatened death.

(4) When organic disease is present and it is difficult or impossible to say what share pregnancy has in producing a dangerous or fatal result.

He dismisses as a factor any pseudo-hysterical condition favored by so many obstetricians, and does not believe that hysteria is ever the initial cause; but says that nausea or vomiting having once been established, a patient hysterically inclined may keep it up until dangerous exhaustion supervenes. He does not believe that retroflexion of the gravid uterus is the cause, but admits that it may aggravate the symptom. He reviews the well-known facts in treatment, but establishes nothing new, stating that the induction of abortion must be considered in these cases which come under the third and fourth divisions of his classification.

He concludes that the better attention to health and the greater inclination to athletic exercises and hygienic surroundings of our present-day girls may naturally come to counteract the artificial existence which has for so many years existed in our child-bearing population.

Jardine [3] says the more cases he sees of pernicious vomiting the more he is convinced that the cause is toxic, acting through the nervous system, with the cause lying in the uterus as the trouble ceases when the uterus is emptied. He places great value on rectal feeding and high rectal injections of saline solution. He reports three cases in which pregnancy was terminated, two recovering, the third dying of septic pneumonia.

Oehlschlager [4] ascribes the vomiting in pregnancy to an oversecretion of gastric juice in the stomach induced by irritation of the innervation from the unaccustomed movements of the uterus substance. For fifty years he has been treating such patients by correcting the hyperacidity with bicarbonate and soothing the nerves with strychnine. Every two or three hours he gives a tablespoonful of the following mixture, and has never had a case that failed to respond promptly. His formula is 8 gm. sodium bicarbonate, 3 gm. tincture strynchiæ; 150 gm. distilled water and 30 gm. syr. cinnam. If he should happen to encounter a case rebellious to this medication he would induce abortion by injection of 3 gm. tincture of iodin in the uterus.

DELIVERY OF THE HYDROCEPHALIC HEAD.

Ballantyne [5] reports a case of hydrocephalus in the aftercoming head in which he cut down in the spinal canal in the mid-dorsal region and passed a catheter through the spinal canal up into the cranium and drew off 36 oz. of clear fluid, after which the head was easily extracted without force. This is not altogether a new proceeding as it has been practiced by Fournier and others on a few cases. He says the advantages of this method over perforation are very obvious: first, the advantage of operating upon parts which are external and visible; second, the accessibility of the armamentarium required, knife and a catheter; third, the rapidity and completeness of the evacuation of the cranium thus obtained; and fourth, the avoidance of any further internal interference with hands or instruments, when all such interference is fraught with danger, and it is by no means an easy or safe procedure to perforate the head.

VERATRUM VIRIDE IN SURGICAL AND OBSTETRICAL PRACTICE.

Bonifield [6] says that H. C. Wood describes veratrum viride as a cardiac and spinal depressant, and increases sweating by its effect on the circulation. Clinically, its most constant effect is to slow the pulse, while it is also a stimulant to the liver, kidneys, skin and salivary glands.

In the treatment of peritonitis, after free purgation, he says it is the most valuable agent we have for slowing the heart action, and it is infinitely superior to strychnine or digitalis, as veratrum lessens its labor. The toxicity of the drug is greatly overrated, and it is not more appreciated because it is often prescribed in doses that are too small to be effective. He has known

[2] Brit. Med. Jour., 1904, ii, 1569.
[3] J. Obst. and Gyn. Brit. Emp., 1904, Oct.
[4] J. A. M. Assoc., 1904, i, 931.
[5] Brit. Med. Jour., 1904, ii, 1567.
[6] Trans. Am. Assoc. Obstetrics and Gynecologists, 1903.

of nine minims being given to a child nine months old, when threatened with convulsions, with most gratifying results. The dose varies from five to thirty minims, according to age, but it is safer to begin with a moderate dose of ten or fifteen minims and repeat it till the physiological effect is obtained. It is usually best given subcutaneously. He advises its use in eclampsia, in appendicitis, and in peritonitis. To obtain the proper results the pulse should be kept down to between ninety and one hundred when using it for peritonitis, lower for eclampsia.

ETIOLOGY OF RETENTION IN RETROFLEXION OF THE GRAVID UTERUS.

Reed [7] demonstrates that retention of urine in retroflexion of the gravid uterus is not due to direct compression of the urethra, or the neck of the bladder, whereby the lumen is mechanically closed, but that it must be regarded as a form of "pressure paralysis" due to interference with the nerves supplying the bladder in some part of their course. Compression of the principal motor nerve (pelvic nerve) is the most common source of retention. The part most subject to pressure is the pelvic ganglion lying near the great cervical ganglion of the uterus, although the nerve may be affected in any part of its course, either near its distribution to the bladder or close to the sacral exit of its component fibers.

Compression of the sensory nerves, either in the course of the nerve or peripherally (in the bladder) may also rarely produce retention. Retention of urine post partem and after laparotomy for tumors is due to diminished intra-abdominal pressure, weakness of the abdominal muscles from over-distention and the dorsal decubitus. Pathological conditions of the pelvis and abdomen which irritate the sensory fibers of the bladder produce the so-called "irritable bladder."

TREATMENT OF RENAL SUPPRESSION DURING PREGNANCY.

Pasteau,[8] in attempting to catheterize the ureters in a case of renal retention during pregnancy, noticed that the distention of the bladder with fluid for this purpose was followed by increased excretion of urine and fall of temperature. Having made this observation he applied this same treatment in two cases of renal retention during pregnancy and with apparent success. He found that reflex renal pain occurred at the time of vesical distention. When retention with infection was accompanied by elevation of temperature, the latter fell when the increased excretion of urine took place. The augmentation or diminution of the quantity of urine excreted varied directly with the degree and repetition of distention. The fluid employed is preferably boric acid solution warmed to body temperature. It must be injected slowly, stopping when the resistance of the bladder is felt or when the patient experiences a decided desire to urinate. This treatment must not be employed if the bladder is diseased. With cases of cystitis it causes pain and may lead to serious accidents. Even in the healthy bladder the distention must not be prolonged.

VAGINAL CESAREAN SECTION FOR ECLAMPSIA.

Webster [9] reports a case of vaginal Cesarean section for a patient in the seventh month of pregnancy, in whom immediate delivery was indicated. The cervix was nearly four inches in length, in a condition of hypertrophic elongation, so that it seemed impossible to dilate and deliver the fetus, except by consuming very long time. He therefore decided that vaginal Cesarean section was the best operation for the case. The operation was performed without the use of any anesthetic. The technical difficulties were considerable on account of the comparatively undilated condition of the vagina, but more particularly on account of the great length of the cervix. However, there was very little hemorrhage attending the operation. The vaginal mucosa was divided mesially an inch below the cervix and this incision was carried around the cervix. The cervix was divided anteriorly and posteriorly, the lower uterine segment was incised in the middle line in front, and after stripping up the bladder anterior to the peritoneum the child was turned and delivered. There was an extremely bad condition of adherent placenta, and it was necessary to separate it manually. The incisions were then closed and the cervix amputated. The patient made a satisfactory recovery.

This is the second time in which he has carried out the vaginal Cesarean section, with the complication of hypertrophic elongation of the cervix, and he has felt from his experience in these two cases that he should not hesitate to attempt the operation in similar instances.

Carstens [10] also reports three cases of eclampsia in which he performed the vaginal operation for delivery in eclampsia. He finds that only one deep incision in the cervix is necessary and that directly in the median line anteriorly. The cut is carried upward into the body of the cervix with very little hemorrhage. The mucous membrane of the vagina must first be cut across in front of the cervix at its junction with the bladder, for about two inches, just as is done in vaginal hysterectomy. The bladder can then be pushed up out of the way, the peritoneal cavity is not opened and all the room necessary is thus obtained.

PUERPERAL ECLAMPSIA.

Nicholson [11] has before advised the administration of thyroid extract for the treatment of impending eclampsia.

He now reports a case of eclampsia successfully treated by morphine and thyroid extract in combination. He first injects morphine and follows it by a large dose of thyroid extract,

[7] Am. J. Obstetrics, 1904, i.
[8] Bull. de la Soc. d'Obst., Paris, 1903. Am. J. Obstet., 1904, i, 566.
[9] Trans. Chicago Gyn. Soc., March, 1904. Am. J. Obstet., 1904, i, 810.
[10] Am. J. Obstetrics, 1904, ii.
[11] Jour. Obst. and Gyn. Brit. Emp., Jan., 1904.

thirty or forty grains given at first, followed in six or eight hours by a second dose of twenty grains, if there is no evidence of improvement. He says the object is to produce symptoms of thyroid intoxication as rapidly as possible as thyroid substance is an ideal vaso-dilator, and by acting in this manner it helps the kidney to perform its functions as well as the skin.

CARE OF PUERPERÆ.

Voorhees [12] says that to insure a normal convalescence a properly managed labor is absolutely essential. Continued asepsis after delivery is of the utmost importance. He advocates gauze wet with a 1–1000 bichloride solution to be worn for several days over the vulva under the sterile pad, changed at least every four hours. Early vaginal examination and douching are to be practiced only on urgent indication.

Late in the puerperium hot douches undoubtedly promote involution of the uterus. Where the uterus continues to relax immediately after delivery he gives an intra-uterine douche of acetic acid. He doubts the efficacy of the abdominal binder. For the first few days it prevents distention and supports the abdominal walls, especially in short-waisted women, where it certainly does prevent anterior relaxation of the abdominal walls. For women who carry the child low and well backward the binder is more or less unnecessary, and may be discarded in a few days. He does not allow patients to sit up after labor for urination or defecation. He thinks that trouble in this respect might be avoided by teaching pregnant women to use the bed-pan. He does not favor hardening the nipples during pregnancy by making applications to them, but they should be kept clean and softened by cocoa butter.

To insure complete involution, he advises that she be turned from one side to the other on the second day. On the fifth day she should commence to lie on her abdomen and also be encouraged to sleep in this position if possible.

Change in posture favors the escape of the lochia and allows the uterine ligaments to contract promoting anterior position. The patient should be kept in bed for two weeks and not allowed to walk for three. If involution is delayed, hot vaginal douches, boro-glycerid tampons, ergot, quinine and strychnine are of value. A routine vaginal examination should be made before the case is discharged.

PREGNANCY AND VALVULAR DISEASE.

Mackenzie [13] believes that when there is distinct evidence of failure of compensation or when the patient is liable to frequent attacks of failure of compensation pregnancy should be forbidden. With fair compensation only and the presence of diastolic murmur, or of a continued irregularity of the pulse pregnancy should be forbidden. With fair compensation with a mitral murmur and the apex within the nipple line, the patient may undertake the burden of pregnancy. In all cases of valvular disease when conception has occurred the patient should be kept under close observation. The presence or absence of edema of the lungs is of great significance in prognosis.

[12] Med. News, Jan. 14, 1905.
[13] Brit. Med. Jour., 1904, i, 921.

ALBUMINURIA OF PREGNANCY, LABOR AND THE PUERPERIUM.

Little [14] from a study of the albuminuria of pregnancy, labor and the puerperium states that:

Albumin is noted in the catheter urine of one half of all pregnant women, being equally frequent in primiparæ and multiparæ, although casts appear with apparently greater frequency in multiparæ. During labor there is a marked increase in albumin and in casts. This may be due to muscular work and to increase of blood pressure. It is unusual to find casts present without albumin, but it must be borne in mind that the quantity of albumin may be too small for easy recognition. Albumin and casts are found less often in the puerperium than in pregnancy. In thirty-four cases of eclampsia and threatened eclampsia, albumin was always present. In hyperemesis gravidarum much albumin and many casts were present.

ECLAMPSIA WITH HYDATID MOLE.

Hitschman [15] of Vienna relates a unique case as proving that eclampsia may occur independently of any fetal metabolism. A secondipara, age eighteen, was attacked by eclampsia when four and a half months pregnant and was delivered of an hydatid mole.

Accordingly, Fehling's [16] theory, that the intoxicating material in this disease is the product of metabolic changes in the fetus, is not valid for all cases. Others have also held that it was to be sought for in the fetal portions of the ovum.

RUPTURE OF MEMBRANES WITHOUT INTERRUPTION OF PREGNANCY.

Meyer-Rugg [17] considers that there are cases in which pregnancy is uninterrupted and the ovum continues to develop in spite of rupture of the membranes. He has collected from literature eleven cases, and one from his own practice. The amnion had formed extensive adhesions in only two of these cases, while in the others it had shrunk into a small ragged skin-like structure at the point of insertion of the cord. In six cases bands had formed around fingers or toes and caused deep grooves or amputations. In two cases the amnion was attached to the cord and interfered with the circulation, in one case causing the death of the fetus. The pregnancy in almost every case proceeded to full term, but only in one instance had the child suffered no harm. Very little is known about the cause of rupture of the amnion. In some cases it has been said to have been due to the muscular effort. The only characteristic symptom

[14] Am. Jour. Obstetrics, Sept., 1904.
[15] Zeit. für Gyn., 1904, No. 37.
[16] Brit. Gyn. Jour., Nov., 1904.
[17] Zeit. für Geburts. u. Gyn., Bd. 51. Jour. Obst. and Gyn. Brit. Emp., July, 1904.

in these cases is hydrorrhea. If the discharge in the first half of pregnancy is clear as water it is amniotic fluid; if it is stained with blood or straw yellow in color and stiffens linen it is exudate from endometritis decidualis. Danger of infection is very slight and antiseptic douches are unnecessary and even contra-indicated as being likely to cause contractions of the uterus.

Reports of Societies.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

REPORT OF THE FOURTEENTH ANNUAL MEETING HELD IN MILWAUKEE, WIS., DEC. 28 AND 29, 1904.

THE sessions were held in the Colonial Hall of the Plankinton Hotel, under the Presidency of DR. CHARLES H. MAYO of Rochester, Minn.

STONE IN THE KIDNEY.

DR. A. L. WRIGHT of Carroll, Iowa, contributed a paper on this subject. He drew the following conclusions:

"(1) Kidney stone may occur at any time of life, from the earliest to ripe old age. (2) These stones are the most frequent, and give rise to the greatest amount of suffering, of any form of surgical disease of the kidney. The clinical manifestations of kidney stone do not depend upon its size. A small stone, just large enough to prevent its escape, and composed of oxalate of lime, will cause more suffering and damage to the kidney parenchyma than a very much larger deposit of softer formation, as well as completely disable the patient while the destructive changes are taking place, although the clinical symptoms are not intensely active. (3) While generally unilateral, stone occasionally occurs in both kidneys, or the reflex symptoms may point most prominently to the sound kidney, the stone being found not infrequently on the side free from pain. (4) Diagnosis is not difficult in the typical cases, but the stone remaining quiescent in some for an indefinite period makes recognition almost impossible. (5) Owing to the fact that kidney stone may put on the livery of infectious diseases, the diagnosis is difficult, if not impossible, in those cases where the classical symptoms are absent. (6) There are few diseases of the kidney more certainly fatal, when left to themselves, and more successfully treated when encountered by proper surgical interference, arresting the destructive changes taking place in the kidney, and restoring the viscus to its physiological functions."

DR. ALEXANDER HUGH FERGUSON said that this branch of surgery is by no means complete, from an etiological and diagnostic standpoint, nor from the viewpoint of treatment. Pain is sometimes very deceptive. It is both local and referred; local in the region of the kidney itself, and referred to different parts of the body, chiefly along the genito-urinary tract from the testicle, sometimes toward the mid line of the abdomen, at other times toward the ensiform cartilage in the region of the gall bladder and duodenum, and not infrequently it is referred to the back. Pain is caused in nearly all cases at first, when there is no septic urine, by stretching of the pelvis of the kidney and of the kidney tissue, the calices, etc., this stretching causing excruciating pain. A quiescent stone does not always cause colic, although it frequently gives rise to referred pain. In the diagnosis one should consider tumor of the kidney, recurrent attacks of interstitial nephritis, and tuberculosis of the kidney. The x-ray is one of the best aids to diagnosis at our command. Dr. Ferguson called attention to the dangers incident to the passage of such instruments as the segregator, cystoscope, etc. He reported a case illustrating the difficulty in making the diagnosis.

DR. W. D. HAINES, when acting as coroner's physician, had made over two thousand autopsies, and in about 50% of the cases he found stones of variable sizes in the kidney. In many of the cases it was impossible to trace the history, but in a number of them, in bringing out the forensic aspect, he was able to trace the history accurately. In those cases in which the history could be traced, it was surprising to find how infrequently symptoms were complained of referable to the kidney. In treating these cases surgically, one of the principal things to determine is the presence of a kidney on the opposite side. An instructive case was cited.

DR. WRIGHT, in closing, maintained in regard to the cause of pain that it is inflammatory in character, and not due, as claimed in textbooks and by teachers, to stretching of the kidney tissue. Many of these kidneys are opened, where the clinical manifestations indicate the existence of stone, but none found, except possibly a little débris, possibly nothing. Furthermore, where the deposit consists of oxalate of lime, the pain is very excruciating. The stone is too large to engage in the ureter, but not large enough, to stretch the pelvis or parenchyma of the kidney, or to produce any stretching effect whatever, so that he believes the same would apply to the presence of stone in the kidney, as in gall-bladder work, in which pain is not due to the passage of gallstones, but is of an inflammatory character, and that when such kidneys are opened and drained, and no stone or stones found, relief is prompt.

NEWER AIDS TO DIAGNOSIS IN DISEASES OF THE URINARY TRACT.

DR. M. L. HARRIS of Chicago, in a paper with this title, arranged the newer aids to diagnosis in diseases of the urinary tract in the following order, according to their value: (1) The cystoscope. (2) Ureteral catheterization or segregation, with comparative analysis of the separate urines. (3) The x-ray. (4) The phloridizin test. (5) Comparative cryoscopy of the separate urines. (6) Cryoscopy of the blood, with the necessary corrections made.

DR. B. B. DAVIS has been using the Harris segregator a great deal in making tests as to the relative condition of the two kidneys, and asked whether the essayist has observed temporary anuria in any of the cases, enough to interfere materially with the value of the test. Dr. Davis then related a recent case in which there was temporary anuria following the use of the segregator.

DR. HARRIS has observed temporary anuria, which lasted sometimes a few minutes, sometimes ten or fifteen minutes. He has noticed it in a number of instances. He has seen it last as long as thirty or forty minutes, but how long it would have lasted had the examination been continued he does not know. Temporary anuria, however, is not common. It is exceptional. He has also seen temporary anuria follow the introduction of the ureteral catheter, which lasted for several hours, or until the catheter was withdrawn.

METHODS OF EXPLORING THE ABDOMEN, AND A NEW ONE.

DR. ALEXANDER HUGH FERGUSON of Chicago stated that in the daily round of work the surgeon meets cases requiring colpotomy, anterior or posterior, to remove

myomata, or cysts, and these cases often give a history of stomach, gall-bladder, kidney or bowel disturbances. An examination of the abdominal organs is highly satisfactory, although oftentimes one feels hardly justified in opening through the abdominal wall for that purpose. The problem is solved by passing the hand and entire forearm into the abdominal cavity through the vagina. In order to furnish enough space for this purpose, it is imperative to cut through the mucous membrane of the vagina its whole length on each side post-laterally. The mucous membrane being severed, the other structures will stretch at once. The bare arm, being smeared over with sterile vaseline, glides in with ease. He has within the last three years, both in private practice and at his clinics, passed his hand through the vagina to the diaphragm, and palpated all the abdominal organs. In one case, after detecting gallstones, he cut down upon the gall bladder and pushed it, full of biliary calculi, through a buttonhole incision in the abdominal wall. In another case a cancer of the rectum was present, and before removing it it was indicated to learn the condition of the internal organs. He passed his hand and detected cancer of the liver and gall-bladder. Still a third case, a maiden lady of mature years, had a vaginal outlet so small that a digital examination could not be made without an anesthetic. He then found cancer of the posterior lip of the cervix. Through an anterior colpotomy he passed his hand, after having slit the vagina on each side, and found the anterior surface of the stomach involved with a hard tumor, evidently cancerous, and the lymphatics were also extensively enlarged with the same disease.

DR. R. C. COFFEE asked under what circumstances the essayist would make such an exploration as he had described, inasmuch as the vagina cannot be thoroughly sterilized, and an abdominal incision is fraught with so little danger?

DR. A. L. WRIGHT spoke disparagingly of this method of exploration, although he has never tried it. He questions the possibility of being able to render the vagina aseptic. The mortality is so slight from an abdominal incision, and the dangers attending it so small, that the method of Dr. Ferguson impresses him as being much more formidable and attended with more danger than an abdominal incision.

DR. C. O. THIENHAUS called attention to the method employed by Ott, who introduces an electric light through the vagina into the abdomen, at the same time using one on his forehead, with which he can explore the abdominal cavity, and see diseases with the eye which cannot possibly be diagnosed otherwise, and are dealt with accordingly.

PERITONEAL ADHESIONS, THEIR CAUSE AND PREVENTION.

DR. ARTHUR E. HERTZLER of Kansas City, Mo., stated that he has studied peritoneal adhesions by means of a small glass window sewed into the lateral abdominal wall of an animal. Peritoneal surfaces may agglutinate without a destruction of the endothelial layer. In true adhesions the endothelial layers are always destroyed. If the basement membrane is not destroyed, the adhesions may separate after a time. If the basement membrane is destroyed, the union is formed by a true growth of fibrous tissue, and is permanent. Ordinary adhesions are formed by fibrin formation, with a loosening of the cement substance of the basement membrane, and an interlacing of the fibers forming the basement layer. This forms in twelve to eighteen hours.

The formation of peritoneal adhesions depends on the same factors as blood coagulation. The irritation of the surface destroys the endothelium, permitting the escape of fibrinogen-forming fluid. The CaCl is abundant below, and immediately below the endothelial cells, as may be demonstrated by silver nitrate. The escape of the leucocytes from the vessels which attends every irritative process activates the proferment. The precipitate of fibrin thus formed is identical with that form in blood coagulation, as may be demonstrated by the fact that those factors which prevent coagulation also prevent peritoneal adhesions. The methods most employed are phosphorus and peptone. The former prevents it by destroying the fibrinogen, the latter by acting on an antiferment. The presence of a digestive fermentin the upper intestinal tract explains why adhesions form less readily in spontaneous perforations in this region.

OPERATION FOR UNDESCENDED TESTICLE.

DR. EMERSON M. SUTTON of Peoria, Ill., reported the case of a boy, eleven years of age, a cryptorchid, who suffered from strabismus and nervousness, but otherwise was well. In making an incision in the inguinal canal the testicle was found above the internal ring free; the cord was retained by a band extending posteriorly toward the median line, and upward opposite the second lumbar vertebra. Blunt dissection was resorted to until the cord was freed and the testicle deposited easily in the bottom of the scrotum without tension. The retaining step of the operation consisted in a buttonhole incision through the bottom of the scrotal sac posterior to its middle, where the skin was less elastic, catgut stitches inserted through the edges of the skin, and albugines or testicle, in a way which held the end of the testicle attached to the skin, necessitating healing by granulation. The convalescence was uncomplicated, and the testicle was permanently fixed in the bottom of the scrotum and was of natural size.

He stated that many operations for this affection have been planned, as Kocher's circular stitch, sewing the cord in the canal without strangulating it; also Watson-Cheyne's retaining stitch through the bottom of the scrotal sac, and then the testicle, tied to the under wire of a retaining frame, to be moved after three weeks, when the organ has become fixed in place by adhesions. Objections to attaching the testicle to the bottom of a movable sac are valid, since experience demonstrates the futility of such a method. The Katzenstein operation of making a flap from the inner side of the thigh is a step in the right direction. However, with the modifications employed in the author's case, considering the satisfactory results, the surgeon can fix the testicle absolutely.

Dr. Sutton also reported a case of aneurism of the superior mesenteric artery upon which he had operated.

THE PRACTICAL SIGNIFICANCE OF CERTAIN COMMON SYMPTOMS IN THE UPPER ABDOMEN.

DR. J. F. PERCY of Galesburg, Ill., read a paper with this title. These symptoms are, pain from ulcer of the stomach and cholecystitis, with or without stones, and the action of the gastric juice on an open ulcer, either in the stomach or duodenum. Another source of pain is the formation of gas from inhibited peristalsis, due to ulcer or adhesions arising from it. Vomiting was also referred to as one of the symptoms of disease in this region, but in the author's experience it is not so frequent as nausea. Two methods were referred to as an aid to the location of lesions in the upper abdomen, one being light finger percussion eliciting pain over the inflammatory focus, in patients not too obese, and the resistance of the costal cartilages on the right side in inflammatory conditions of the gall bladder

and in ulcer of the duodenum or pylorus, as recently pointed out anew by Elliott.

The author laid special stress on the effects of chronic infections of the liver and pancreas from ulcer of the stomach and persistent cholecystitis, and cited cases in point.

He stated that some of these cases are rarely diagnosed correctly. Biliousness and dyspepsia are the words most frequently used as descriptive of the diagnosis, and upon which the treatment is based.

The author stated further that a persistent infection will in an appreciable number of cases cause death, regardless of the form of treatment which may be instituted, because of alteration in the functionating tissues of the liver and pancreas. Future investigation will show that the results of this infection are chemical through the intervention of bacteria at work in ulcerating areas in the stomach, duodenum or gall bladder.

Dr. John B. Murphy congratulated the essayist on bringing out with greater force the fact that a differential diagnosis between lesions of the pyloric area of the stomach, the head of the pancreas, and the gall bladder is extremely difficult. He was pleased that the essayist brought out the periodicity of exacerbations in ulcers of the stomach. A large number of cases of ulcer of the stomach have pronounced exacerbations. They are practically well in the period between the attacks. Dr. Murphy detailed an interesting case corroborating the latter statement.

Dr. Alexander Hugh Ferguson stated that when a pain comes on suddenly, which is referable to the epigastric region, although no tenderness can be elicited in that region, but can be over the gall bladder, it tends to show that the seat of the trouble is within the gall bladder, the stone or stones being engaged in the cystic duct. Pain occurring while the patient is in a quiescent state, or occurring after the patient has gone to sleep, points to the gall bladder rather than to any other organ. A lancinating pain, only coming on occasionally and referable to the region of the gall bladder and ducts, points to carcinoma. Pain referred to the region of the ducts is more characteristic of gallstones. In cases of stone or tumor of the kidney, as well as in tumor of the suprarenal capsule, pain is generally referred to the back. Pott's disease should not be overlooked. Pain referred to the testicle, and radiating into the genito-urinary tract points towards the kidneys as the seat of the trouble. Still, pain is referred sometimes to these regions from other conditions than stone in the kidney.

Dr. William D. Haggard said that while expertness and refinement in diagnosis are desirata, surgeons must realize that many of the cases under discussion are not amenable to the niceties and refinement of diagnosis to which attention had been drawn. In reference to differences in pains and colics of which patients complain, he referred to the importance of a well-taken clinical history, saying that a great deal of dependence should be placed on it.

Dr. B. B. Davis has been struggling for years against the habit of making incisions without having made a careful and sufficient study of the case beforehand, but he has concluded that a man is more dangerous who does not make such incisions occasionally than the one who does make them before he has made accurate diagnoses. He related a case which he thought to be one of cholelithiasis from the symptoms and clinical history, yet much to his surprise in operating he found a large appendix, turned up underneath the gall bladder with dense adhesions around the cystic duct. There were no stones found in the gall bladder; it was perfectly patulous, and after freeing the adhesions he could squeeze bile out without any trouble. He did nothing to the gall-bladder, simply removed the appendix, and thus far relief has been complete.

SPLENIC ANEMIA.

Dr. Palmer Findley of Chicago reported a case of splenic anemia in which he removed the spleen with good results. The patient was forty-five years old; had suffered for four years from a dragging sensation in the left side and uterine hemorrhage. Blood examination showed reds, 2,784,000 per cubic millimeter, leucocytes, 6,000; and hemoglobin, 42%. Thirteen months after operation her blood showed reds, 4,600,000; leucocytes, 6,000; and hemoglobin, 78%. In spite of the fact that the uterine hemorrhage continued, the patient refused curettage for its control.

Dr. Findley offered a word of caution in the hasty diagnosis of splenic anemia without giving due consideration to other possible causes for splenic enlargement associated with a secondary anemia, such as malaria and syphilis, and advised splenectomy for only the rapidly progressive cases, reserving medical treatment for the milder form.

HIGH-FREQUENCY ELECTRICITY AS A FACTOR IN THE TREATMENT OF SURGICAL AND GYNECOLOGICAL DISEASES.

Dr. E. M. Sala of Rock Island, Ill., related his personal experience with the d'Arsonval high-frequency current, and reported several cases comprising a variety of affections in which the immediate results are gratifying, but what the permanent results are going to be, he cannot predict. However, he is convinced that the d'Arsonval-Odin apparatus has a very promising future.

THE CARE OF THE AXILLA AFTER EXCAVATIONS FOR MALIGNANT OR INFECTIVE LESIONS.

Dr. John B. Murphy of Chicago discussed this subject, saying that extensive dissection of the axilla is not infrequently followed by contracting painful cicatrices, limitation of motion, edema, neuralgia, etc. These can be relieved or avoided by (*a*) line of skin incision; (*b*) immediate grafting or transplantation; (*c*) muscular implantation, and (*d*) muscular conservation.

MOORHOF'S BONE PLUG.

Dr. James E. Moore of Minneapolis, Minn., stated that in January, 1903, von Mosetig reported a large number of successful results from the use of a new bone plug. He gave the formula for making the plug. The plug does not act as a foreign body, nor does it act as a culture medium. It possesses the inhibitory and medicinal properties of iodoform without causing iodoform intoxication. His experience with this material, although limited, has been sufficient to satisfy him that better results can be obtained in treating bone cavities with it than by any older method, and in illustration he reported four recent successful cases. He believes that cases can now be treated successfully with this bone plug in which formerly amputation was performed, as, for instance, in cases of tuberculosis of the wrist and ankle joints.

EXTIRPATION OF THE GASSERIAN GANGLION IN THE TREATMENT OF FACIAL NEURALGIA.

Dr. A. E. Halstead of Chicago stated that during the last decade the treatment of inveterate facial neuralgia has progressed mostly along surgical lines. After speaking of the different methods of extirpating the ganglion, he reported seven cases in which he resorted to extirpation for the relief of facial neuralgia. From the cases he reviewed in the literature and from

his own experience, he said it seems possible to have a return of the pain after removal of the ganglion. In his own cases he has had each ganglion subjected to a careful examination by a competent microscopist. In all of the specimens submitted ganglion elements were found, and the gross anatomical characteristics of the organ were preserved.

DR. JOHN B. MURPHY stated that in his twelve cases of removal of the Gasserian ganglion there were four deaths. This large percentage of deaths caused him to abandon the operation of extirpation of the ganglion. Since his last report he has had one recurrence of neuralgia from the injection of osmic acid. In the entire number of cases up to date, with this exception, he has not had a recurrence of neuralgia following the injection of osmic acid.

MORTALITY, DISABILITY AND PERMANENCY OF CURE IN SURGERY.

DR. CHARLES H. MAYO of Rochester, Minn., selected this subject as the President's Address, and among other things stated that a careful selection of cases, asepsis, and the kindness of Providence may give a low death-rate which will cover much poor surgery. There is no general rule for computing surgical mortality at present, and it is best to accept the layman's view that the operation had caused death where the patient went into the hospital alive and came out dead, regardless of the cause of death or time after operation. Failure to grasp the surgical opportunity at the proper moment is the cause of an increased mortality and disability, as well as a reduction in cures. The layman, as well as the professional man, understands that many diseases, such as appendicitis, ulcer of the stomach, and gallstone disease, may each have repeated medical cures, and that in the same cases early operation is successful with the low mortality, the complication of delay causing the most trouble.

During this year in St. Mary's Hospital 516 operations for appendicitis were performed, with four deaths. Their hospital detention was reduced on an average to eleven days each, amounting to fourteen years' saving over the time which would have been required for the same work five years ago. In 205 hernias during the year, this saving was from one to two weeks in each case. Among stomach operations, 108 gastro-enterostomies gave 8 deaths (7.4%), most of these in late cancer, while 13 pylorectomies and partial gastrectomies gave no deaths because in an early stage. There were 5 deaths in 101 hysterectomies, more than one-half of these being due to an increased effort to cure cancer. Altogether, up to Dec. 1, 1904, 1,000 operations for gallstone diseases gave a mortality of 5%. There were 673 cholecystostomies, with 2.4% mortality; 186 cholecystectomies gave a mortality of 4.3%. The common duct cases, 11%; cancer, 22%, showing that one case in five had passed the safe time for operation, while early operation in 416 cases gave but two deaths.

The brain is poorly constructed for repair, hence late operations give only occasional permanent and complete cures. Dr. Mayo said that the progress in the treatment of cancer will be largely through a more careful study of the lymphatics involved in metastasis.

SURGICAL DISEASES OF THE PANCREAS.

DR. D. C. BROCKMAN of Ottumwa, Iowa, said that recent studies of the pancreas show the importance of internal secretion from the islands of Langerhans; also the influence of regurgitation of bile into the pancreatic ducts as a cause of pancreatic inflammation. He mentioned biliary disturbance as the chief cause of pancreatic disease, and stated that pancreatic cysts are believed to be mostly due to this cause. He reported three instructive cases of cyst of the pancreas, and then gave an outline of inflammatory troubles, with special reference to the diagnosis and treatment of acute and chronic pancreatitis.

(*To be continued.*)

Recent Literature.

Blood Pressure in Surgery. An Experimental and Clinical Research. By GEORGE W. CRILE, A.M., M.D., Professor of Clinical Surgery, Western Reserve Medical College, Visiting Surgeon to St. Alexis Hospital, Cleveland, etc. Philadelphia and London: J. B. Lippincott Company. 1903.*

This volume is a publication in book form of the essay by Dr. Crile for which the Alumni Association of the College of Physicians and Surgeons of New York City awarded him the Cartwright Prize for 1903. Blood pressure is a subject which has attracted marked attention during the past few years and Dr. Crile has been conspicuously active in this line of investigation. The book describes his methods of investigation and of recording his observations, the details of his experimental work, a summary of his experimental data so obtained including the effects of different drugs, mechanical pressure, the use of the pneumatic suit and the resuscitation of animals apparently dead, his clinical observations on the blood pressure changes during surgical operations in different regions of the body. The concluding pages contain a summary of his results, and his conclusions, with his reasons therefor, especially in relation to surgical shock and collapse.

In describing in detail his experimental and clinical work the author gives his readers the opportunity of forming their own opinions as to the correctness of his conclusions.

The book deserves a careful perusal, for if the writer's conclusions are correct regarding the subjects he has investigated, the present methods of treatment for nervous exhaustion, vasomotor paralysis, shock and collapse will be radically changed.

Textbook of Operative Surgery. By DR. THEODOR KOCHER, Professor of Surgery and Director of the Surgical Clinic in the University of Berne. Authorized translation by HAROLD J. STILES, M.B., F.R.C.S., Edin., Surgeon to the Royal Edinburgh Hospital for Sick Children, etc. London: Adam and Charles Black. 1903.*

This the second English is a translation of the fourth (latest) German edition. By a change in type it contains nearly twice the subject matter of its predecessor, with only slight increase in size. Seventy new illustrations have been added, many of them colored. The present volume is a book of 440 pages.

It is a most excellent textbook on operative surgery. The subject has been presented in a masterly way. It has the characteristic that it

* These reviews, originally contributed a year ago, were unfortunately mislaid during a printers' strike, and are now published though belated.

is essentially a presentation of its author's personal experience and methods of operating. That these are the best "goes without saying." The book is crowded with valuable data and important information. Although the book can be used as a guide to operations on the cadaver, the performance of operations on the living subject has been especially kept in view and only those methods which the author's great clinical experience has proved to be trustworthy and reliable are described. Statements of the indications for operations and all descriptions of surgical instruments or instruction as to the technic of their use, or description of methods of sutures are omitted intentionally. In this new edition the chapters on Anesthesia, Treatment of Wounds, Trephining, Amputations and Excisions have been entirely rewritten. As one compares the volume with its immediate predecessor one notes also marked changes in many other chapters. The methods of resection of the stomach, for example, have been so far perfected that new illustrations of these operations have been prepared. As stated above, the author still adheres to his principle of describing and recommending to a large extent only those methods of treatment which he has found, from his own experience, worthy of adoption. As an example, Professor Kocher still recommends his method for the radical cure of hernia on account of its simplicity and the excellent permanent results obtained in spite of the objections formulated by Bassini and others. The new chapters on Anesthesia, Treatment of Wounds (which introduces very interesting data relating to aseptic technic) and Direction of Skin Incisions create great interest and are replete with valuable information. The coloring of the muscles and vessels in many of the illustrations has added greatly to their graphic efficiency. The description of the surgery of the thyroid is another conspicuous feature of the work and is most satisfactory. It is especially well illustrated. The general classification and arrangement of previous editions has been retained; also the excellent method of placing explanatory references of illustration in immediate connection with them instead of the common method of reference to footnotes by appended numbers. Briefly, one finds almost nothing to criticise and almost everything to commend. It is conspicuous as one of the best presentations of modern surgery. Few books are so valued or attain such prominence that they are printed in six different languages. It can truly be said to have attained a well-deserved international reputation.

An American Textbook of Surgery for Practitioners and Students. By PHINEAS S. CONNOR, M.D., FREDERIC S. DENNIS, M.D., WILLIAM W. KEEN, M.D., CHARLES B. NANCREDE, M.D., ROSWELL PARK, M.D., LEWIS L. PILCHER, M.D., NICHOLAS SENN, M.D., FRANCIS J. SHEPHERD, M.D., LEWIS A. STIMSON, M.D., J. COLLINS WARREN, M.D., and J. WILLIAM WHITE, M.D. Edited by WILLIAM W. KEEN, M.D., LL.D., F.R.C.S. (Hon.), and J. WILLIAM WHITE, M.D., Ph.D. Fourth edition, thoroughly revised and enlarged. Philadelphia, New York and London: W. B. Saunders & Company. 1903.*

We are very glad indeed to see the American Textbook of Surgery appear in its fourth edition. It was in danger of being superseded by other books. A great deal of progress has been made in surgery since the first edition of this book, but, so far as we can see, the editors have incorporated into this edition all the accepted knowledge. Several new chapters have been added. They are Military Surgery, Naval Surgery, Tropical Surgery, Examination of the Blood, Immunity and Pancreas. The subject of Acute Osteomyelitis has received special attention in this edition. The treatment of joint disease is not so well considered as it should be. The chapter does not give a clear perspective as to the value of protection and fixation in joint disease. Many of the chapters have been rewritten, notably the chapters on Tumors, Nerves, Joints, etc. In this edition the publishers have used a thinner and a better paper, they have used a smaller type for the new chapters, and yet the book has increased in bulk to 1,333 pages. The American Textbook of Surgery may be accepted as one of the best textbooks on surgery.

Modern Surgery: General and Operative. By JOHN CHALMERS DACOSTA, M.D., Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia, New York and London: W. B. Saunders & Co. 1903.*

The first edition of this work was published in 1894. The contrast between the present volume and the original one shows that the author has actively interested himself in the progress of surgery. Also the fact that three editions have been exhausted is an indication of its popularity. From a "Manual" the book has grown to an extended treatise on General and Operative Surgery.

The present edition has been enlarged and revised and much new material has been added to cover the numerous improvements, advances and discoveries since 1900. It appears as an octavo volume of 1099 pages, and is illustrated by 707 illustrations, some of them in colors. The size of the page has been increased. The type is clear. The subdivisions of subjects are indicated by heavy type. There is appended a good index. The book represents a very large collection of surgical information both general and specific in character which is presented instructively and concisely. Of the surgical specialties only diseases of the nerves, the rectum and anus and the male genito-urinary system are discussed.

The revision has distinctly improved the book. The reader is continually impressed with this as he compares the new with the previous edition. He sees it in the text, in the quotations

* See note on p. 198.

from recent publications, and in the illustrations. Its arrangement and style especially adapt it for a student's textbook, since in it obsolete or useless methods are omitted, and he is not confused by conflicting ideas or opinions. It presents the essentials of clinical history, diagnosis and treatment, given concisely and without great detail. If anything were to be criticised it would be the illustrations showing the dissections for the ligation of arteries which are copied from Bernard and which do not compare favorably with some of the recent publications on operative surgery, *e. g.*, Bickham, Treves or Kocher.

The volume, as has been already stated, is a marked improvement over the third edition, and its author deserves to be accorded praise and commendation for his work.

Juler's Ophthalmology. Third edition. A Handbook of Ophthalmic Science and Practice. By HENRY E. JULER, F.R.C.S., Ophthalmic Surgeon to St. Mary's Hospital, Surgeon to the Royal Westminster Ophthalmic Hospital, London. Octavo, 733 pages, with 190 illustrations and 25 full-page plates in colors and black. Philadelphia and New York: Lea Brothers & Co. Publishers. 1904.

The third edition of Dr. Juler's Textbook on Ophthalmic Science and Practice in its enlarged and revised form should prove acceptable to the professional reader. The favor that former editions of the work have enjoyed in the past will probably continue to be possessed by their successor, which, in its present shape, is so comprehensive and so thoroughly covers affections of the eye, as to be adapted to the needs of the general practitioner and special worker alike. It is well indexed, of convenient size, a good example of book work and is deserving of its well-merited popularity.

The Optical Dictionary. Edited by CHARLES HYATT-WOOLF, F.R.P.S. Philadelphia: P. Blakiston's Son & Co. 1904.

The aim of the compiler of this handy little book is very well stated on its titlepage wherein it appears that the intention has been to place in the hands of students and others who may be more or less interested in general optical literature "an optical and ophthalmological glossary of English terms, symbols and abbreviations, together with the English equivalents of some French and German terms relating to physical, physiological and pathological optics, optical and other instruments of precision, and terms descriptive of color,and photo-chemistry, to which are added a number of general and mathematical expressions." The arrangement of the dictionary is strictly alphabetical, therefore compound words must be looked for under the first and not the principal word of the combination. The acknowledgment of indebtedness to the large number of sources of information which have been utilized is a reliable witness of its probable value as a means of ready fererence. W. D. H.

THE BOSTON

Medical and Surgical Journal.

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BILLS BEFORE THE MASSACHUSETTS LEGISLATURE.

A LARGE number of bills more or less connected with medicine or medical practice is now before the Massachusetts Legislature awaiting confirmation or rejection. Some of these bills, of which one concerning cruelty to animals is an example, have appeared on previous occasions. If, as has been said, the repeated presentation of the same petition year after year results in its passage, some of these numerous bills before us may expect ratification. We are inclined, however, to think that the sense and judgment of our legislative committees will continue to reject those bills which their predecessors found not fitting to become laws, whereas certain acts, to which we are about to allude, will no doubt receive the commendation of the Legislature and ultimately become laws.

The interest which the questions regarding tuberculosis have recently aroused in this community is reflected in the bills presented on this general subject. In the first place, through the petition of Dr. Edward O. Otis and others, a bill has been presented to provide for an exhibition of means and methods of treating and preventing tuberculosis. The design of this measure is to place in the hands of the State Board of Health means whereby it may arrange a public exhibition of matters relating to tuberculosis as a method of education of the public. Attempts in this direction have already been made with success, both in Baltimore and Boston, and certainly no unprejudiced person should object to the passage of this bill. Acts are also introduced for the establishment of a hospital in Massachusetts for consumptives and another to provide

for a new state sanatorium which differs apparently merely in detail from the former. It will be remembered that Governor Douglas in his inaugural address spoke of the necessity of provision for the treatment of prisoners affected with tuberculosis. A bill has been introduced to meet this contingency. A movement is likewise on foot to provide for the addition of two members to the board of trustees of the Massachusetts State Sanatorium thereby increasing the number to seven, two of whom shall be women. Again the familiar bill appears looking to the prohibition of expectoration in public places and conveyances. It need hardly be said that this bill meets with our hearty approbation, and we are furthermore of the opinion that it may easily be made effective, or at least more effective, if it were enforced if passed. To make further laws regarding this or other matters and allow them to go unenforced injures rather than assists the cause.

Another series of bills is concerned with various matters relating to patent medicines. Several of these bills must be regarded from the outset as futile, as, for example, one petitioning the Legislature relative to the designation of the ingredients of patent and proprietary medicines. It is certainly unlikely that such a measure could be passed, however useful from certain points of view it might be. Julia Ward Howe and others make a like petition providing that every article embraced in an act shall bear an inscription stating the exact character of its contents. A bill which may stand some chance of passage is one providing that the quantity of alcohol contained in drugs or medicines shall be specified upon the boxes, packages or other receptacles. That there is need of legislation in this matter is evident to those who have followed the development of certain preparations, whether proprietary or not. The tendency to ignore, if not actually to conceal, the amount of alcohol used as a preservative certainly is an evil. The advertising contracts made with newspapers provide for their cancellation if any law is passed which will interfere with the sale of the individual quack medicine. It thus appears that the opposition of the press to the legislation may be insured in advance. Finally, a bill which should receive careful attention is one relative to the sale and distribution of patent and proprietary medicines containing poisonous drugs, except on the prescription of a registered physician. It is urged in this bill that no patent or proprietary medicine, or any other salable article claiming medicinal properties, shall be sold which contains opium or other poisonous drugs or more than 1% of alcohol, unless a statement of the existence of these ingredients be inscribed on the package.

The bill to which we have alluded for the prevention of cruelty to animals again appears on the list. This bill is well known both to medical readers and to the laity. It has been consistently and hitherto successfully opposed by the medical profession on grounds which we have repeatedly stated in these columns. It is not to be expected that this year's committee will look upon the matter in any other light than have its predecessors. The bill in our opinion should not pass. A bill in which the medical profession should feel particular interest is one presented by Dr. Francis D. Donoghue providing for the keeping of records by certain hospitals and for the admission as evidence of such records by the Courts of the Commonwealth. The bill as framed is somewhat too general in its statement. It does not, for example, definitely appear whether private institutions are included in its provisions. That the passage of this or a similar bill would avoid certain inconveniences in testifying to the authenticity of records is manifest. Whether or not certain compensatory disadvantages may not arise it is not our purpose at this time to discuss.

Bills providing for a board of registration in optometry and one providing for the registration of osteopaths will no doubt meet with determined opposition on the part of those having the best interests of the community at heart. An echo of the recent excitement regarding the situation of a hospital for lepers in this state appears in the form of a bill providing that no hospital or similar institution for persons afflicted with leprosy or other contagious disease shall be situated upon the grounds of the institution at Tewksbury or in the town. Two bills are also introduced prohibiting the establishment of pest houses near Metropolitan boulevards. It is hardly to be considered that specific laws are necessary to regulate such matters. The further regulation of the Fourth of July celebration is attempted by two bills regulating the sale of fire arms, fire crackers and high explosives. Still another bill which, if space permitted, we should be glad to discuss in more detail, is one for the regulation of the practice of professional nursing by registration. The movement of which this bill is a part is in general commendable and no doubt tends toward the improvement in the standard of nursing.

Several other bills are before us which are trifling if not ridiculous, as, for example, one relating to the licensing of " suitable " persons as clairvoyants; one relating to the sale of cigarettes so worded that, if a boy leaves school at eighteen, he may buy cigarettes, but if he chances to go to college he may not buy them until he is twenty-one years old. A bill, well intentioned, but futile in its present form, providing for the prevention of blindness is introduced which, if passed, would necessitate the enforced reporting of the most trifling affections of the eye in young infants. The climax seems to be reached in a bill urging that the Commonwealth appropriate the sum of five thousand dollars to be expended in procuring books, pamphlets and other documents upon the subject of " normal " breathing and distributing the same throughout the Commonwealth. Here again, however excellent the intention, its accomplishment is certainly not to be gained by any such chimerical method as this.

We have not exhausted the bills in the foregoing summary, but their general character is indicated and one may see wherein his efforts for the betterment of conditions may best be exerted if he be inclined, as he should be, to take an active part in the discussion either for or against the proposed legislation.

THE HENRY PHIPPS INSTITUTE.

THE first annual report of the Henry Phipps Institute for the study of the cause, treatment and prevention of tuberculosis is before us. The pamphlet gives a summary account of the work of the first year and a reprint of the lectures delivered under the auspices of the institute during the year. The institute was founded Feb. 1, 1903, and incorporated Sept. 1, 1903, with the purpose, as set forth in the charter, of " The study of the cause, treatment and prevention of tuberculosis and the dissemination of knowledge on this subject; the treatment and cure of consumptives. The benefits shall be administered without regard to race, creed or color." Its founder was Henry Phipps who also maintains it. Temporary quarters were provided, and on the second day of February, the day after its foundation, it was open for work. As, no doubt was expected, the number of patients has exceeded the capacity of the institute for its clinical work, but in spite of this manifest disadvantage the work has been so far developed that a complete organization is now in existence as amply demonstrated by the report before us. The medical staff has grown with the work so that at the end of the first year it consisted of sixteen men. Naturally, some difficulty has been experienced in obtaining men who are willing to devote their time to this subject alone, and also who had the capacity, through preliminary training, for research and for the advancement of medical science. With the very great amount of work which immediately developed during the first year it has required much labor to bring the year's records into exact order, but this has apparently now been accomplished in a satisfactory fashion. In addition to the dispensary a hospital was opened on April 20, in the same building as was used for the ambulatory cases. Difficulty in obtaining nurses for the work was overcome by establishing a training school for girls who had been cured of the disease at a neighboring sanatorium. A double work is thus done of training women for the care of consumptives and also giving cured consumptives an occupation. It may, however, be regarded as questionable whether such an occupation is desirable for persons who have already had the disease. The final result of this experiment will certainly be awaited with interest. The collection of statistics presented in the volume is certainly of much value in spite of the short time during which they have been collected. The arrangement is also such as to permit of great ease of reference. The latter part of the book is taken up with the various lectures, announced from time to time in the medical journals and public press, which have been given under the auspices of the institute by men distinguished in the investigation of tuberculosis. The names of Trudeau, Osler, Woodhead, Biggs and Maragliano appear in this section. The pamphlet is illustrated particularly by various cuts pertaining to the work at Saranac Lake and is concluded by a satisfactory index. In general, this publication is but another evidence of the extraordinary attention which tuberculosis is now receiving. The Phipps Institute will no doubt do much toward strengthening the hands of the National Association, and from the combined work of this and other such organizations we may confidently expect progress of a radical sort.

OYSTERS AND TYPHOID FEVER.

IT will be remembered that George A. Soper, Ph.D., Consulting Sanitary Engineer, reported the recent Butler epidemic of typhoid fever in

a most painstaking way, bringing to bear upon the problem his knowledge as an engineer as well as a remarkable acquaintance with the disease. It is, therefore, a satisfaction to see from his pen a report of an investigation of the sporadic outbreak of typhoid fever which occurred in the village of Lawrence, N. Y., last summer and fall. The particular interest attaching to this investigation, which is published in full in the current number of the *Medical News*, lies in the fact that he has been able to trace it without question to contaminated oysters. His general conclusion was that none of the cases were due to any insanitary condition within the village, and that more than two thirds were directly or indirectly traceable to shellfish taken from water polluted with sewage. Unusual care was taken in the investigation because of the recent interest excited by the possibility of typhoid fever being transmitted by oysters, and also because other theories were entertained as to the cause of this particular outbreak. Dr. Soper thinks that the results of his study may throw some light on the occurrence of sporadic typhoid elsewhere, inasmuch at at least two hundred times as many oysters and clams were shipped away as were eaten in the village primarily affected. Attention is drawn to the very evident fact that, considering the wide dissemination of oysters sent elsewhere, it is in no way remarkable that the source of the disease occurring at a distance should not be recognized. After an admirable discussion of the method of investigation, with analyses of the sewage and suspected oysters, Dr. Soper concludes his report by recommendations for the prevention of typhoid in the future. These directions should certainly serve as a means of prophylaxis. Regarding oysters and other shellfish he says that there is as much legal right to regulate the purity of shellfish as to regulate the purity of milk, that one is quite as important as the other, and that it is a duty to exclude from sale all oysters, clams and other shellfish which are liable to cause disease.

As we remarked, in commenting editorially upon the investigation of the Butler epidemic, the work represented by Dr. Soper's investigation should stand as a model for all studies of this sort. The establishment of the direct relationship between contaminated oysters and the disease is naturally a matter of the utmost consequence, and no one, we believe, who looks over this report can fail to regard the connection as proved in this epidemic.

MEDICAL NOTES.

Dr. Weir Mitchell's Birthday. — Dr. S. Weir Mitchell, of Philadelphia, was seventy-five years old on Wednesday, Feb. 15. He just escaped being a valentine.

Ohio Board of Health Extends Its Service. — The Ohio State Board of Health has extended its service by undertaking to make bacteriological examinations free of charge, upon the request of any physician, of specimens from suspected cases of pulmonary tuberculosis, diphtheria and typhoid fever. This offer, however, will not apply to physicians living in cities where the local board of health is maintaining a laboratory for such examinations.

The Samuel D. Gross Prize. — This prize of twelve hundred dollars has been awarded to Dr. James Homer Wright of Boston, for an essay on "The Biology of the Micro-organism of Actinomycosis."

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize, shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the title page it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Feb. 15, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 37, scarlatina 27, typhoid fever 17, measles 6, tuberculosis 48, smallpox 1.

The death-rate for the total deaths reported during the week ending Feb. 15, 1905, was 18.17.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Feb. 11, 1905, was 233, against 201 the corresponding week of last year, showing an increase of 32 deaths and making the death-rate for the week 19.78. Of this number 132 were males and 101 were females;

225 were white and 8 colored; 142 were born in the United States, 86 in foreign countries, and 5 unknown; 49 were of American parentage, 159 of foreign parentage, and 25 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 41 cases and 5 deaths; scarlatina, 18 cases and 2 deaths; typhoid fever, 19 cases and 1 death; measles, 5 cases and no deaths; tuberculosis, 46 cases and 27 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 48, whooping cough none, heart disease 27, bronchitis 8, and marasmus 2. There were 12 deaths from violent causes. The number of children who died under one year was 33; the number under five years 50. The number of persons who died over sixty years of age was 74. The deaths in public institutions were 63.

EXPERT FEES. — It is stated that Judge Sherman, one of the presiding justices in the late trial of Charles L. Tucker for murder, has seen fit to reduce the bills of certain of the experts concerned in that trial. The court particularly thought the bills of the handwriting experts too high and reduced many of them approximately 50%. It is interesting to note that the bills as finally approved by Judge Sherman amounted to less than $3,000 for the medical experts and to upwards of $9,000 for the handwriting experts.

BOSTON CITY HOSPITAL ALUMNI ASSOCIATION. — This Association held its annual meeting Tuesday evening, Feb. 14, at the Hotel Brunswick. There were ward visits at the hospital in the morning, after which luncheon was served. After the meeting in the evening, the usual dinner took place, Dr. C. F. Folsom presiding; one hundred and thirty-five members were present. The speakers were the Hon. John D. Long, Dr. F. C. Shattuck, Charles E. Grinnell, Esq., Dr. D. W. Cheever, E. D. Codman, Esq., and Dr. J. G. Blake. At the close of the dinner Dr. C. H. Williams was introduced as the next president.

NEW YORK.

A CENTENARIAN. — Mrs. Charity Cotter, believed to be the oldest woman in the northern part of the state, died on Feb. 9, in Ogdensburgh, St. Lawrence County, N. Y., at the reputed age of one hundred and seven years.

GIFT TO POST-GRADUATE MEDICAL SCHOOL. — It is announced that the New York Post-Graduate Medical School has received a gift of $7,500 from Mrs. Richard T. Auchmuty, a member of the Schermerhorn family.

APPOINTMENT OF DR. THOMAS L. FOGARTY. — Dr. Thomas L. Fogarty, a graduate of the Long Island College Hospital, in 1891, has been appointed Sanitary Superintendent of the Borough of Brooklyn, a position occupied until recently by Dr. P. J. Murray.

BEQUESTS. — By the will of the late Kasryel H. Sarasohn, founder of *The Jewish Daily News*, and *The Jewish Gazette*, one tenth of his estate of $600,000 is left to Hebrew charities. Of this amount the Montefiore Home and Hospital for Chronic Invalids receives over $13,000.

Miscellany.

SHIP SURGEONS.

ACCORDING to the *Medical News*, the dean of the surgeons of the Atlantic fleet, if not among the steamships of the world, is Dr. J. Fourness Brice, of the steamship "Cymric" of the Boston-Liverpool service of the White Star Line. Dr. Brice has practised his profession on shipboard since 1859. He was born in England in 1826, was graduated from the Royal College of Surgeons in London in 1850, and from the College of Physicians and Surgeons, New York, in 1858. His connection with the steamship service came about as the result of an accident. He had already come into extensive practice in South Yorkshire, having followed in the steps of a kinsman lately deceased. When one day on a fox-hunt his mount fell, and the young physician received an injury that prevented his continuing in practice. He came to America, and, after an extended stay, returned as surgeon of the American steamship "Congress." For two years Dr. Brice was an interne in a London hospital. Then he tried to resume his Yorkshire practice, but his health was such that he could not go on, and he decided to look for a position as ship's surgeon. He secured an appointment to the "Scotia" of the Cunard Line, with which he continued for thirteen years. In 1879 his allegiance was transferred to the White Star Line. After sailing on various vessels he was assigned to the steamship "Germanic," on which he served for twenty-three years. Very recently he left that vessel and was transferred at his request to the steamship "Cymric." Dr. Brice, in spite of his seventy-eight years, is an active, progressive physician. When he is ashore in America, he spends most of his time in the hospitals in order to keep abreast of the times. When the ship is at Liverpool, however, he betakes himself to his Yorkshire home, where he enjoys the freedom of the moorlands and the society of his wife and two daughters. Dr. Brice has crossed the ocean nearly 900 times.

Another very well-known medical man at sea is Dr. R. Lloyd Parker, late past assistant surgeon in the United States Navy, who is now attached to the American liner "St. Louis." Dr. Parker is a graduate of the University of Edinburgh in the

class of 1879. As soon as he completed his hospital course he became a surgeon on a ship of the Allan Line for two trips, and then joined the staff of the American Line. During there years he has made nearly 600 transatlantic trips. Throughout the Spanish-American War Dr. Parker was a past assistant surgeon in the navy, attached to the United States steamship St. Louis. For his services in conveying the wounded of Admiral Cervera's fleet from Santiago to Portsmouth, N. H., Dr. Parker received the thanks of the Spanish Government.

Dr. O'Loughlin, of the "Oceanic," a graduate of the Royal College of Surgeons and Physicians in Dublin, entered the White Star service in 1872 upon the conclusion of his hospital course. He has made more than 700 trips across the Atlantic Ocean. He has done a good deal of surgical work at sea, his last major operation being an amputation at the hip-joint. Next to Dr. Brice, Dr. O'Loughlin has been longer at sea than any other translatlantic surgeon.

The ship surgeon, however he may devote some of his time to the amenities of civilized life, cannot be the social butterfly he is sometimes represented as being. Indeed, most surgeons see the passengers only at the table over which they preside, and occasionally on the promenade deck. The ship surgeon leads, in fact, practically the same kind of life as his confrère ashore. He is a busy man. The larger vessels seldom carry fewer than 500 people on each trip, and in the summer months 1,500 would be nearer an average number.

Correspondence.

NOTE ON THE POSSIBLE GOOD EFFECTS OF THE X-RAYS IN CASES OF ENLARGED PROSTATE.

BOSTON, Feb. 9, 1905.

MR. EDITOR: It is well known that enlargement of the prostate may be the bane of old men. If castration, as has been stated, affords relief in such cases, the atrophy of the testes and the destruction of the spermatozoa produced in rabbits and guinea pigs by exposure to the x-rays (Seldin,[1] Albers-Schönberg [2]), the azoospermia caused in two men treated by the x-rays (Philipp [3]), the azoospermia produced in ten men doing x-ray work, who did not take proper precautions, (F. Tilden Brown [4]), suggests that exposure of the testes to these rays might produce results similar to those obtained by castration, in cases of enlarged prostate. This treatment would be painless and devoid of the risks attendant on the operation of castration and might be used in connection with the exposure of the prostate itself, a method I began to employ a few years ago, with the idea that the x-rays might diminish the size of the prostate as they reduce the size of glands in other parts of the body. The results were not definite in my cases, as the patients did not pursue the treatment. In treating the testes and prostate the x-rays which might cause a burn should be excluded, as outlined in this JOURNAL, January 19, 1905, pages 81-82, and the amount of rays used measured by means of the fluorometer, an instrument described in "The Roentgen Rays in Medicine and Surgery." For the protection of the patient, as well as the practitioner, the vacuum tube should be enclosed in a Rollins box, that is in a box painted with many coats of white lead, and in addition to this it is well also to place a sheet of lead between the practitioner and the vacuum tube.

Philipp in the article referred to above treated one his cases for the purpose of producing sterility and the other for the cure of a skin disease, the patient having been told that owing to the seat of the disease sterility might follow.

Very truly yours,

FRANCIS H. WILLIAMS, M.D.

[1] Ueber die Wirkung der Roentgen- und Radiumstrahlen auf innere Organe und den Gesamtorganismus der Tiere. Fortschritte a. d. Geb. d. Roentgenstr., 1903–4, vii, 323–338.

[2] Ueber eine bisher unbekannte Wirkung der Roentgenstrahlen auf den organismus der Tiere. Münch. med. Woch., 1903, 1, 1859–1860.

[3] Die Roentgenbestrahlung der Hoden des Mannes. Fortschritte a. d. Geb. d. Roentgenstr., 1904–5, viii, 114–119.

[4] Medical News, 1905, lxxxvi, 175–176.

NOTES ON X-LIGHT: ON THE IMPORTANCE OF TREATING THE GENERATIVE ORGANS OF DEGENERATES BY X-LIGHT TO PREVENT THEIR INCREASE.

BOSTON, Feb. 9, 1905.

MR. EDITOR: As the exposure to x-light of animals can make them sterile and can kill the fetus in all stages of development, laws should be passed which will enable the power of x-light to be used to protect the race against the constant menace from the children of degenerates. The present attempts to diminish as far as possible this risk by confining the degenerates in prisons and asylums are inefficient because in the intervals when they are free they exercise their generative functions to the serious detriment of society. As the x-light treatment is painless and if used by those skilled in the art without risk, one of the reasons which has ever deterred society from protecting itself by surgical operations is absent.

In this JOURNAL for Feb. 14 and 28, 1901, the dangerous nature of x-light was pointed out, and it was stated that no x-light should be allowed to strike a patient except the smallest beam that would cover the area to be examined, treated or photographed. At that time these papers were criticised and it was said there was no practical danger. Now that the danger is more appreciated it is hoped the precautions recommended in earlier notes for protecting the patient and the physician will be taken, particularly as these do not increase the difficulty of the methods and make the treatment more scientific.

Very truly yours,

WILLIAM ROLLINS.

ARE WE CAREFUL IN PRESCRIBING STRYCHNINE?

SOUTH BOSTON, Feb. 12, 1905.

MR. EDITOR: Two fatalities from the accidental use of strychnine sulphate by children having come to my knowledge in the past six months prompts me to write this heading. Few of the cathartic pills made by the manufacturers but contain from $\frac{1}{60}$ to $\frac{1}{30}$ of this drug, and while it may be safe in that dose or even if two or three such pills are taken by *an adult*, it becomes a toxic dose for a child of, say, four or younger. Again it is observed that the enterprising tablet manufacturers put out such pills or tablets not only sugar-coated but colored, pink, red or chocolate, and what more natural than that children, when the opportunity offers, often swallow such deceptive candy-like, death-dealing tablets with avidity? Of late the discovery of the tolerance of cases of shock or threatened collapses after abdominal operations to large doses — $\frac{1}{30}$ to $\frac{1}{15}$ grain of the Sulphate of Strychnine, and that hypodermically — has made us readjust our ideas of the useful dose *in adults*, so we are in danger of forgetting the extremely greater susceptibility of children to the drug. Better give it in solution or in an easily soluble tablet without sugar coating or tempting colorings.

Very truly yours,

E. S. BOLAND, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 4, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York	3,908,644	1,507	452	23.49	20.24	3.25	.66	2.19
Chicago	1,990,750	534	176	25.66	21.53	2.43	.56	—
Philadelphia	1,467,968	538	110	21.37	20.45	1.67	1.30	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	214	45	17.29	18.21	.47	.47	—
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,960	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	88	22	10.22	27.26	—	1.13	—
Boston	617,950	213	42	15.49	17.84	1.40	1.40	.94
Worcester	136,925	49	15	10.20	18.36	2.04	—	2.04
Fall River	119,349	35	17	14.28	45.71	—	2.85	—
Lowell	104,402	36	10	8.33	22.11	2.78	2.78	—
Cambridge	100,926	32	7	18.18	4.54	—	4.54	—
Lynn	78,675	40	8	2.50	25.00	—	2.50	—
Lawrence	72,348	24	7	20.83	29.16	—	4.16	—
Springfield	72,020	34	9	17.65	23.53	5.88	—	—
Somerville	70,413	33	9	12.12	33.33	3.03	—	3.03
New Bedford	68,883	31	11	9.68	25.81	3.23	—	—
Holyoke	56,538	15	7	6.67	13.33	—	—	—
Brockton	46,661	13	3	7.70	15.40	—	—	—
Newton	39,310	8	1	12.50	25.00	—	—	—
Haverhill	39,061	12	3	16.67	16.67	—	—	—
Malden	37,995	14	3	21.42	14.28	—	—	—
Salem	37,188	10	3	—	—	—	—	—
Chelsea	36,499	23	8	4.35	26.09	—	—	—
Fitchburg	36,335	5	3	—	20.00	—	—	—
Taunton	34,577	14	6	7.14	35.71	—	—	—
Everett	30,309	10	—	40.00	—	—	—	—
North Adams	29,201	5	3	20.00	20.00	20.00	—	—
Quincy	26,798	15	2	13.33	6.67	—	—	—
Gloucester	26,127	11	4	18.18	—	—	—	—
Waltham	25,797	8	1	12.50	25.00	—	—	—
Brookline	23,576	7	—	—	14.30	—	—	—
Pittsfield	22,870	8	—	12.50	25.00	—	—	—
Medford	21,858	6	2	—	33.33	—	—	—
Chicopee	21,692	12	3	8.33	25.00	—	—	—
Northampton	20,314	6	2	16.67	33.33	—	—	—
Beverly	15,807	4	—	—	50.00	—	—	—
Leominster	15,711	3	—	33.33	33.33	—	—	—
Clinton	15,694	4	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	8	3	12.50	37.50	—	—	—
Hyde Park	14,500	2	1	—	—	—	—	—
Newburyport	14,478	8	0	—	25.00	—	—	—
Woburn	14,315	6	1	—	50.00	—	—	—
Melrose	13,819	5	0	—	20.00	—	—	—
Westfield	13,809	3	1	—	33.33	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	2	0	—	—	—	—	—
Revere	13,609	0	—	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,324	1	1	—	—	—	—	—
Southbridge	11,716	5	3	40.00	20.00	—	—	—
Watertown	11,575	2	1	50.00	50.00	—	—	—
Weymouth	11,350	11	1	—	36.36	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,664; under five years of age, 1,006; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 749; acute lung disease 764, consumption 388, scarlet fever 25, whooping cough 16, cerebrospinal meningitis 37, smallpox 7, erysipelas 16, puerperal fever 17, measles 13, typhoid fever 30, diarrheal diseases 98, diphtheria and croup 82.

From whooping cough, New York 4, Chicago 7, Philadelphia 3, Providence 1, Boston 1. From scarlet fever, New York 15, Chicago 1, Philadelphia 3, Baltimore 2, Boston 2, Brockton 1, Attleborough 1. From cerebrospinal meningitis, New York 33, Boston 2, Worcester 1, Somerville 1. From smallpox, New York 1, Chicago 6. From erysipelas, New York 4, Chicago 4, Philadelphia 3, Providence 1, Boston 2, Worcester 1, Cambridge 1. From typhoid fever, New York 10, Chicago 3, Philadelphia 7, Baltimore 1, Providence 1, Boston 3, Fall River, Lowell, Cambridge, Lynn and Lawrence, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending Jan. 21, 1905, the death-rate was 18.1. Deaths reported 5,419; acute diseases of the respiratory organs (London) 238, whooping cough 92, diphtheria 63, measles 88, smallpox 2, scarlet fever 38.

The death-rate ranged from 6.7 in Kings Norton to 32.5 in Merthyr Tydfil; London 16.6, West Ham 19.6, Brighton 16.8, Southampton 13.6, Plymouth 22.0, Bristol 19.3, Birmingham 19.2, Leicester 15.8, Nottingham 21.3, Birkenhead 15.3, Liverpool 22.7, Wigan 22.3, Bolton 16.1, Manchester 18.5, Salford 18.2, Halifax 21.6, Bradford 21.8, Leeds 15.1, Hull 18.2, Sheffield 21.0, Newcastle-on-Tyne 16.8, Cardiff 17.4, Rhondda 18.8, Willesden 14.0, Stockton-on-Tees 20.9.

METEOROLOGICAL RECORD.

For the week ending February 4, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 29	30.23	20	27	12	72	46	59	W	S W	8	9	C.	C.	0
M. 30	30.44	30	33	16	68	63	66	N W	N	8	13	O.	C.	0
T..31	30.38	16	22	9	66	55	60	N	N W	14	5	O.	C.	0
W. 1	30.20	18	26	11	67	55	61	W	W	8	11	C.	O.	0
T.. 2	29.99	18	25	11	58	51	54	W	W	10	20	O.	C.	0
F.. 3	30.19	15	23	8	65	64	64	W	W	12	9	C.	C.	0
S.. 4	30.42	12	19	5	67	59	63	N W	N W	10	12	C.	C.	0
☞	30.28		23	10			61							0

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

RECENT DEATHS.

THOMAS FRANCIS PADULA, M.D., M.M.S.S., died in Quincy, Feb. 9, 1905, aged forty-five years.

THOMAS H. SHERWOOD, M.D., a veteran of the Civil War and a medical examiner in the Pension Bureau at Washington, died in that city February 9. In 1861 he served as assistant surgeon of the Third Pennsylvania Cavalry, and later as surgeon of the Twenty-seventh Pennsylvania Infantry, being mustered out in the year 1865.

WILLIAM H. RISK, one of the best known physicians in the State of New Jersey, died at his home in Summit on February 8. He was born in 1842, and was a graduate of Lafayette College and the medical department of the University of Pennsylvania. He practiced for a time in Philadelphia, and in 1873 removed to Summit, N. J. For some years he was president of the local board of health, and at the time of his death was consulting physician to the Fresh Air and Convalescents' Home. In addition to being the leading physician of the place, he was prominently identified with public affairs and the general improvement of Summit.

BOOKS AND PAMPHLETS RECEIVED.

The Nervous Affections of the Heart, being the Morison Lectures delivered before the Royal College of Physicians of Edinburgh in 1902 and 1903. By George Alexander Gibson, M.D., D.Sc., F.R.C.P. Ed., F.R.S.E. Edinburgh and London: Young J. Pentland. 1904.

X-ray Therapy in Leukemia. A Preliminary Report. With Special Reference to Lymphatic Leukemia. By Joseph A. Capps, M.D., and Joseph F. Smith, M.D. Reprint.

The Urine and Clinical Chemistry of the Gastric Contents, the Common Poisons, and Milk. By J. W. Holland, M.D. Seventh Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Year Book of The Medical Association of the Greater City of New York. P. Brynberg Porter, A.M., M.D., Editor. June, 1904.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By James Nevins Hyde, A.M., M.D., and Frank Hugh Montgomery, M.D. Seventh and Revised Edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Report of the Tuberculosis Commission of the State of Maryland. 1902–1904.

Manual of Physiological and Clinical Chemistry. By Elias H. Bartley, B.S., M.D., Ph.G. Second Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Examination of the Urine. A Manual for Students and Practitioners. By G. A. De Santos Saxe, M.D. Illustrated. Philadelphia, New York, London; W. B. Saunders & Co. 1904.

Original Articles.

EYE STRAIN.

EYE STRAIN AS A FACTOR IN FUNCTIONAL NERVOUS DISABILITIES.*

BY MYLES STANDISH, M.D., BOSTON.

DR. G. M. GOULD'S "Biographic Clinics" has brought the subject of eye strain under discussion, and while not offering any opinion as to the diagnoses made by Dr. Gould in the cases of these eminent gentlemen, the symptoms which he has selected could very well have been due to ocular strain, the weak point being that there is no evidence to show that they might not have had some other origin. But I have been much interested, and I may say greatly surprised, at the reviews and editorials which these books have drawn forth. The burden of the greater proportion of these articles is that Dr. Gould has grossly exaggerated the importance of ocular strain and has written these books with great extravagance of statement. Most of these articles strike the practitioner of ophthalmology as extraordinary, and I have brought here copies of various reviews and editorials published within the last year in well-known medical journals. I have not time to read them entire as I should like to do, but I will offer you a few extracts. The first is from an editorial in the *British Medical Journal:*

"While recognizing the importance of Dr. Weir Mitchell's discovery that eyestrain is often the cause of headache and other disorders, and the practical value of the labors of Dr. Gould and his fellow workers in developing that discovery, we think that the case has been overstated to such an extent as to make its acceptance by reasonable men very difficult, if not impossible."

The following extract is from the *Journal of the American Medical Association:*

"Surely our author has been extravagant in his statements or else we have misunderstood them. And we confess that his use of the word 'functional' has been a little confusing to us at times. Astigmatism is not, we believe, the source of all these ills, nor is the wearing of glasses a panacea. Let the multitudes of those who have worn them, carefully fitted, for headache, but with no help, bear witness. Let the thousands of sufferers from migraine, an excellent example of heredity, an influence at which our author rather casts slurs, testify, who have tried glasses in vain."

And here is one from *The Ophthalmic Review:*

"Indeed one rises from a perusal of his interesting little booklet with the impression that eye strain may and does cause not merely almost every bodily ailment, but even mental and moral errors also, and that possibly, nay, well-nigh certainly, if Adam had only taken Eve in good time to a thorough refractionist (Philadelphia, of course), she would never have suffered from that persistent sinking feeling at the pit of the stomach which caused her to desire the forbidden fruit, and that lack of power to inhibit impulses which led her to take that —' Whose mortal taste brought death into the world and all our woes, with loss of Eden.' "

Another from the *Medical Record,* from which I will quote you only a line:

"He has industriously tilled the field which Ranney ploughed, but there's nothing growing."

Another from the *Medical News:*

"As is well known, the author makes a brief that the disorders of these celebrated men were due to eye strain. In our opinion a most fantastic and foolish hypothesis, but knowing that it is not impossible for anyone to see the things that they wish to see, we can forgive the gifted author for leaning so strongly on his specialty."

Another from the book review in *The Journal of the American Medical Association:*

"At the outset it is to be noted that several of these fourteen victims of ill health suffered from migraine, that this disorder was certainly the chief cause of their disability, and that Dr. Gould regards this form of 'sick headache' as essentially of ocular origin. 'A few drops of mydriatic in the eyes will cure it, temporarily, of course, and non-use of the eyes will prevent it; a wrong pair of glasses will cause it and right ones will cure it. Thousands have been cured by the right ones.' . . . Dr. Gould may easily understand why the enthusiasm of the neurologist and the ophthalmologist is stilled as he reads these sentences. If there is one fact that has hitherto appeared easy of demonstration in the conduct of cases of migraine it is that the ocular element in them is generally small and that the correction of the ametropia and heterophoria present exerts but a feeble influence on the attacks, and that a complete cure is the exception (perhaps not in 10% of the cases) by any form of ophthalmic therapeusis. Moreover, almost every neurophthalmologist regards the immediate eye symptoms — phosphenes, scintillating or fortification, scotomata, cloudiness of vision, hemiopia, aching of the eyes, etc., as only incidentally related to the visual apparatus."

After having listened to the above extracts, I think you will readily agree with me that it ill behooves the authors of these editorials and book reviews to accuse Dr. Gould of extravagance of statement. It is not necessary for me, before this audience, to enter into any elaborate statement as to the source of eye strain. Let me only remind you that there may be an astigmatism in either eye and that superimposed upon a basic error of refraction in such a manner that uncorrected we might have four focal points, two in each eye, and no one of them fall properly upon the retina, and that in addition to these, there may be such muscular imbalance that the eyes not only tend to diverge or converge, but very possibly one eye may tend to rise above or fall below the other, and that all these six errors must be corrected for binocular single vision. Such a demand for continuous nervous stimulus is a constant drain upon that nervous reserve

* Read before the Boston Society for Medical Improvement, Dec. 5, 1904.

which every one must have to tide him over times of stress and depression.

The basis upon which all these criticisms are made would appear to be that eye strain is supposed to be the sole cause of all the conditions enumerated, whereas, every ophthalmologist knows full well that eye strain should be spoken of, not as the sole cause of the various nervous depressions which follow, but as the precipitating cause. There are thousands of men, in fact most everybody, who have some ocular defect; many such people are unaware that there is anything the matter with their eyes until commencing presbyopia emphasizes their infirmity. Such people have no nervous disturbance whatever, although other individuals with exactly the same refractive or muscular errors are continual sufferers with headache or other nervous phenomena. Indeed, it is not the eyes which are responsible. The result is entirely dependent upon the man behind the eyes; if his nervous equilibrium is such that it is easily disturbed, or if his power of resistance to nervous irritation is diminished, then there follows some functional nervous disturbance which exhibits itself at the point where the individual with the greatest difficulty maintains peaceful activity, so to speak. One man has headaches, another has dyspeptic symptoms, another has muscular twitchings, and so on. This fact, that it is the man and not the eyes which is responsible, is easily exemplified in the life history of such an individual. When he is a lad and working hard in school, using his eyes many hours a day, his nervous disabilities may be very great. If when, he leaves school, his work makes no great demands upon his eyes so that the amount of nervous depression is much less, he "outgrows" his headaches, or what not. But if it happens to befall him that he has typhoid fever, or suffers an attack of influenza, or has great mental worry, or any other physical or mental condition which reduces him much below the normal state of health, so that the resistance to the nervous strain springing from his eyes is diminished, all his old symptoms return. If then he comes to the oculist and is properly fitted to glasses and relieved of his symptoms, the chances are that if he meets his oculist a couple of years later, he will say, "I have gotten all over that astigmatism you prescribed glasses for," and goes his way happily. But as he approaches forty-five years of age and presbyopia diminishes his ability to correct his refractive error and the gas in the evening is duller than it was before, his headaches recommence.

Now there are other individuals whose nervous balance is such that in their best estate they are absolutely unfitted to withstand the nervous exhaustion which results from frittering away their nervous reserve by ocular strain, and at no time in their lives can they use their eyes with impunity without the aid of properly correcting glasses, and the least disturbance in the adjustment of their lenses will produce headaches, if not other nervous phenomena. In these days, even the layman has become thoroughly convinced that eye strain produces headache; in fact, he has become almost convinced that eye strain produces *all* headache, and it happens to me every year or two that a man comes into my office relating a tale of headache dating back only a week, or two weeks, which arouses my suspicions, and when I place a clinical thermometer in his mouth the temperature confirms the thought that I may have before me a case of walking typhoid, and such it may eventually prove to be.

You will have noticed that in the extracts I read you in reference to migraine, great stress is laid upon the fact that migraine is often inherited, but, gentlemen, are not eyes inherited? It is very common to find similar refractive errors running through a whole family, and I myself have cognizance of one well-known family in which there were twenty cases of convergent strabismus in three generations. With my neurological friends I agree that migraine is a disturbance of the central nervous system, that it is allied to epilepsy, that it has crises similar in nature, that it is controlled by the same drugs, that it is not ocular in fact, yet, you will notice that in one of our extracts it is absolutely assumed that the oculist thinks it is the eyes and not the brain which sees, and that phosphenes, scintillating scotomata, hemiopia, etc., are seen by the eyes and not by the brain, therefore I would simply state that all seeing is done by the brain, and that the eyes are only the instruments of the seeing apparatus.

It must have happened to every oculist who has prescribed glasses for patients suffering from migraine that when the patients returned after two or three years they related that they had been entirely relieved until quite recently, and that the return of the migraine and other nervous symptoms made them think that their glasses should be changed. After examination a change usually seems advisable and they will probably return again two or three years later and repeat that they were immediately relieved by the glasses prescribed and that their symptoms have only again recently returned. Such cases are by no means uncommon; nevertheless, I do not wish to be quoted as saying that all migraine can be cured by correcting the error of refraction. The truth is that uncorrected ocular error produces sufficient nervous irritation to precipitate these attacks in people otherwise predisposed to their occurrence. The same is equally true in those cases of nervous debility which are generally spoken of as nervous prostration. One sees many such cases where the nervous breakdown may or may not be due to the eyes, and very likely is *not* due to the eyes, who have passed through a period of illness and who have nearly recovered the control of their nervous system, who have gained in flesh, who look well, who feel well, but who nevertheless are unable to undertake the active duties of life; they cannot go anywhere to meet and talk with people, cannot go down town and mingle in the crowds, and cannot even entertain in their own homes with-

out prostration "from weakness." In this condition they remain for years, yet if for some reason, attention is drawn to their eyes, and they have them examined and put on glasses correcting their refractive or muscular error, they promptly get well. There are other cases of less serious nervous disturbance, happening more often in men, in which there is unusual irritability of temper, impatience, lack of ability to concentrate attention upon what they read, even although the topics may be those in which they take the greatest interest, where an ocean voyage or other change of scene which takes them away from the usual and accustomed use of their eyes for near work, seems to have relieved them of all their symptoms, and yet, upon returning to their work, the same story, after a short interval, is repeated. Such cases are often permanently cured by a proper correction of the error of refraction.

I will say a word about so-called nervous dyspepsia, although I prefer to speak of such cases as nervous dyspeptics. One approaches these cases with diffidence at the present time when it would seem that the surgeons are proposing to cure all cases of dyspepsia by operations upon the stomach. Nevertheless, it has often been my lot to be told by patients that after a correction of the error of refraction, unexpectedly to them, their dyspeptic symptoms had disappeared.

When it comes to the more difficult question of the relationship of ocular strain to epilepsy and chorea, I can only say that having written on this subject some years since, it has been my good or bad fortune to have many such cases referred to me for an opinion and treatment. Yet in the adult where the symptoms of epilepsy have been present for some time, I have never seen a cure when glasses were prescribed and worn, although it is undoubtedly true that their removal increases the number and virulence of the attacks, and such patients are always unwilling to give them up. In children and in youth, however, it is certain that epileptiform convulsions in nowise distinguishable from true epilepsy have been absolutely cured by correcting the error of refraction or the muscular imbalance.

I have here two other editorials from which I wish to read short extracts. They are both from the *Lancet:*

"Nor is it found, generally speaking, that the symptoms attendant upon proved astigmatism are so serious as Dr. Gould would have us believe. Donders was probably not far wrong when, after pointing out the almost universallity of the condition, he said that a degree of less than dioptre was rarely disturbing to vision. Nothing is more common in presbyopic hypermetropes than to see astigmatism first become manifest at the age of forty years or thereabouts, and then to call for correction, not so much for the relief of discomfort as for the improvement of sight."

In this you will see the same wrong assumption, that because a small error of refraction in a certain number of cases produces no symptoms before forty years of age or thereabouts, all small errors can, therefore, be disregarded. In this connection it is well to remember that Donders was a Dutchman, and it is possible that the Dutch are of a more phlegmatic nature than Americans, for it is certainly true that among our own people small errors of refraction are much more likely to produce reflex nervous irritations than large errors with accompanying poorness of vision. The reason is obvious: With a large error the patient sees poorly and abandons the effort, while with a small error and high acuity of vision, the patient is often tempted to maintain his correction from the moment he awakens until he retires at night.

My other quotation shows that all editorial writers do not think this a "fantastic and foolish hypothesis," and so well expresses my own opinion that with it I will close this rather informal talk:

"Our knowledge of the etiology of these conditions has been matched by the circumstance that the efforts of the patients to use their eyes are not made apparent by any marked symptoms of inflammation in these organs themselves, but are apt to excite a train of neuroses which have hitherto distracted the attention of physicians from the eyes and concentrated it upon the stomach, brain or other organ to the distress of the patient and the opprobrium of medicine. Dr. Gould sometimes takes for granted what a Scotch jury would return as 'Not proven.' But it is clear that in every case in which the various symptoms commonly included under the terms 'chronic dyspepsia' and 'biliousness' are present and prove resistant to ordinary treatment it would be well to obtain the advice and opinion of an ophthalmic surgeon, for this can certainly do no harm and may quickly abolish the trouble and restore the patient to health."

EYE STRAIN AS A FACTOR TO BE CONSIDERED IN CHILDREN BACKWARD IN THEIR STUDIES.*

BY ALLEN GREENWOOD, M.D., BOSTON.

Eye strain, with the natural inclination to avoid it, is the cause of much child inattention and apparent backwardness, and this is well recognized, but I do not think it is always given the attention it deserves. This latter is largely due to two important factors,— the desire of the parents to avoid the use of glasses by the child and the fact that the majority of such children have a normal acuity of vision. That more attention is being paid to this subject at present than formerly is evidenced by the adoption of the routine testing of the eyes of children in many of the public schools of the country. This is a long step in advance, but as usually conducted it simply points out those children whose visual acuity is below normal and who often cannot by any amount of strain improve their sight. Near-sighted children who are quickly detected by the school test can often read for hours with the book held at their near points, and frequently are the brightest scholars in the school, while their hypermetropic neighbors of equal mental

* Read before the Boston Society for Medical Improvement, Dec. 5, 1904.

capacity, who pass the school test by a more or less excessive accommodative effort, finding that they cannot maintain for long the added strain necessary for near work, fall behind in their studies. The ambition of these latter to keep up with their mates often leads them to make the necessary accommodative effort during the first of the school year, but they soon give up the unequal contest and content themselves with excelling in out-door sports, in nature study, in their school gardens, and in manual training. I do not wish anyone to infer from this that the study advantage is permanently with the near-sighted child, for that is far from the truth. The myopic child usually becomes more and more myopic until the eyes become weak and diseased, and from then through after life the individual is more or less handicapped thereby, while the hypermetropic child may struggle through school far below his myopic mate in marking, to take up some life work which does not require close vision and eventually be the more successful. Both need the help of the oculist and his dreaded spectacles to put them on an equal footing with their normal sighted mates. Teachers should therefore be trained to observe the symptoms of eye strain as well as to test the visual acuity which latter, in my opinion, is of the lesser importance.

Of the objective symptoms of eye strain in school children I will call your attention to the following: Backwardness in children otherwise bright and active, inattention during the study hour, especially when the child will not study about things which have aroused great interest in the field or garden, frequent rubbing of the eyes or pressing them shut with the hands to rest the tired ciliary muscles, frequent changes of the position of the book or head with the endeavor to make the accommodation and convergence balance better, and scowling, blinking, or pinching the lids together when trying to study. Twitching of fibers of the orbicularis muscles often amounting to a facial chorea may be observed. The child's eyelids are often red and the edges covered with scales with an increase of this condition on attempting to use the eyes. Subjectively the child will complain that the words run together requiring a rubbing or shutting of the eyes to make the words come clear again with the periods of clear vision becoming shorter and the rubbing and closing more frequent. The eyes feel hot and painful until the child, unable to keep up this unnatural strain, is practically forced to become inattentive to the book and necessarily backward in all that pertains to book knowledge. This forced inattention aids the entry of those thoughts of mischief which are said to be present in the idle mind.

Frequently the complaint is of increasing headache so that on arriving home the little sufferer has to be put to bed with what is called a "sick headache."

These symptoms are being better understood by all, and this has been proven to me by my experience of the past few years.

I shall not take your time describing cases to support the above, but simply make the statement that I have seen many a case where the correction of an astigmatic or hypermetropic error of refraction has been of untold benefit and placed a seemingly backward child nearer the normal plane. The criticism is often made that if a child be sent to an oculist, glasses will be ordered anyway. This has grown out of the fact that few children are sent to an oculist until the defective eye condition has become apparent, and of course requires correction. Occasionally when I have told parents that their child did not need glasses they have expressed surprise and made the above criticism. It may be that sometimes glasses are unnecessarily prescribed, but is it not better so than that many of these children be held back by their eye strain remaining unrelieved. There is, however, some truth in the criticism, which makes it clear that oculists should always look at their patients from the broad standpoint of physicians. Children who are referred to oculists by family physicians have usually had their physical condition made as good as possible, but many children are sent directly by parents and teachers and the oculist should be on the lookout for the children whose vitality is reduced by adenoids, nasal obstructions, anemias, or other more or less obvious abnormalities, the correction of which by the family physician would obviate the necessity of wearing glasses for a slight error of refraction. Many robust children with slight hypermetropia do their work with no trouble or strain until some sickness weakens them and their power of accommodation which may necessitate rest, tonics, or temporary glasses, according to the needs of the individual case. It is in such cases that the oculist and family physician should be of mutual help.

In closing let me urge you to look upon eye strain as an important factor to be considered in all children backward in their studies, especially if they present some of the other symptoms mentioned above, and I feel sure that such a course will be found productive of good in many cases. Even in the really feeble minded benefit may be obtained by wearing the correcting glasses which enable the attention to be fixed without strain. I have shown in a paper recently published[1] that the majority of feeble-minded children have marked errors of refraction, and this being true, though to a lesser degree, in backward children, it emphasizes the necessity of the above suggestion.

EYE STRAIN CONSIDERED AS A FACTOR IN THE PRODUCTION OF LATERAL CURVATURE OF THE SPINE.*

BY HENRY W. KILBURN, M.D., BOSTON.

My paper, this evening, will be, with a few additions, a short résumé of a paper I read last March, before the New England Ophthalmologi-

[1] Proceedings of the National Education Ass., 1903, Page 1022.

* Read before the Boston Society for Medical Improvement, Dec. 5, 1904.

cal Society, and afterwards published in the BOSTON MEDICAL AND SURGICAL JOURNAL.[2]

As long ago as 1894, the idea occurred to me that, in certain cases, there was some causative relation between eye strain and scoliosis. The first case which brought this idea to my mind was the one quoted as "Case II" in my paper of March last. The patient was a girl eight years of age. When I first saw her, she had compound hypermetropic astigmatism. Two years later, I found that she had compound *myopic* astigmatism. A little later, she developed a right hyperphoria. The latter condition caused her to tilt her head to one side, and I referred her to Dr. R. W. Lovett, for correction of faulty attitude. Dr. Lovett found a lateral curvature of the spine. I ordered exercise prisms for the correction of the hyperphoria, and Dr. Lovett prescribed appropriate exercises for the trunk muscles, and the scoliosis and hyperphoria slowly disappeared.

Since then, I have had a number of cases which have led me to believe, without question, that refractive error or vertical heterophoria may, in certain cases, be a predisposing cause of scoliosis. To particularize, any refractive error or any condition of muscular imbalance, which causes a growing child to bring the eyes too near the object viewed, and, therefore, to lean forward too far over the desk, or which causes a tilting of the head to one side, may, in my opinion, induce a lateral curvature. Under such conditions, a right-handed patient will generally support the head by placing the left hand under the chin, and leaning the left elbow on the desk, and then, leaning forward to an excessive degree, will assume an attitude which causes a left upper dorsal spinal curve, — that is, the right shoulder will droop, and the convexity of the dorsal curve will be to the left. In the case cited above, I think it quite possible that the tilt of the head to the right, thus produced, may have caused the right hyperphoria which the patient had for a time. The astigmatic axes in this case were both horizontal, so that there was no other possible cause for the hyperphoria, which had not previously been present.

Again, my experience has led me to believe that an oblique astigmatic axis, by causing the patient to tilt the head to one side, to obtain clearer vision (a fact with which every ophthalmologist is familiar), induces a faulty attitude, and that, when the head is habitually tilted to one side, and the patient is a growing boy or girl, that is, one who is in the plastic condition of adolescence, a lateral curvature of the spine may be induced. If this condition is neglected too long, the curved portion of the spine becomes anchylosed, and it may prove very difficult to correct the deformity.

Simple myopia causes the patient to lean too far forward over the desk, in order to bring the eyes nearer to the object looked at. So, also, does hypermetropia of high degree, because a patient so afflicted will approach the eyes too near to the object viewed, in order to obtain larger images, though they will not be clear ones. Either of these conditions may, in my opinion, induce a lateral curvature.

As I stated in my paper of March last, Scholder, of Lausanne, has found a close relationship between myopia and scoliosis. He has reported statistics of 2,314 school children, of whom 571 had a lateral curvature. He found that the amount of myopia varied in direct proportion to the degree of scoliosis. His paper was published in 1903.

There have been reported a number of cases of torticollis in which eye strain undoubtedly played a rôle. Dr. Edwin E. Jack had such a case several years ago. So far as I know, however, the idea has not previously been advanced that an oblique astigmatic axis might be a predisposing cause of scoliosis. Also, the idea that increasing myopia might cause scoliosis occurred to me nine years before the publication of Scholder's paper.

Among all the cases that have seemed to bear out my theory, the most interesting one was a case in which, apparently, the scoliosis affected the refraction to a marked degree. The patient was a young boy. At three successive examinations, under a cycloplegic, two years apart, I found a diminishing hypermetropia. This, of course, was equivalent to an increasing myopia. It occurred to me, — at the third examination, that it would be well to examine the spine. I did so, and found a well-marked scoliosis, — a left upper dorsal and right lumbar curve. I referred the case to Dr. Lovett, who found a lateral curvature which did not disappear on suspension. In this case, it was evident that the scoliosis, by causing a slouching position at the school desk, had diminished the hypermetropia (that is, had changed the refraction towards myopia) by necessitating too great an amount of convergence.

I think that uncorrected refractive error is capable of inducing scoliosis, and that scoliosis is capable of inducing myopia, — one form of refractive error.

My excuse for reading this paper is that I wish to make a plea which I believe my experience entirely justifies. This plea is that, in every case of marked tilting of the head to one side, or of increasing myopia or diminishing hypermetropia, the spine should be examined, and that, in every case of spinal curvature, the refractive error should be carefully corrected.

The majority of cases illustrating this theory have been growing boys and girls, — girls in the majority of cases. In all the cases, except one (a boy), there was poor muscular development. In all the cases, without exception, there had been a rapid increase of the body weight out of proportion to the increase in muscular strength.

As I said in my paper of last March, eye strain and scoliosis act and react upon each other, in a vicious cycle, as do eye strain and neurasthenia. It is only by correcting both the scoliosis and the refractive error that the patient can be materially helped.

[2] Vol. cl, No. 12, pp. 318, 319, March 24, 1904.

EYE STRAIN AND REFLEX PHENOMENA OF NASAL ORIGIN.*

BY HENRY H. HASKELL, M.D., BOSTON.

My paper is devoted to a brief account of certain reflex phenomena of nasal origin, most of which resemble the ordinary symptoms of eye strain; and, as the cases in which these manifestations occur usually have a faulty refraction and *real* symptoms of eye strain, those due to the nose are frequently considered to be manifestations of the refractive error, and glasses are prescribed with the expectation that they will relieve the patient, a result which is manifestly impossible.

It is evidently of the utmost importance, to both the patient and the oculist, that the latter shall recognize the presence of the nasal factor, and refer the case to a rhinologist for examination and treatment; and yet, I have failed to find in the textbooks on ophthalmology more than a brief reference to the fact that nasal disorders may give rise to ocular symptoms resembling those of eye strain.

In a recent treatise, edited by Posey, I find the *most* explicit reference to the subject that I have yet seen, and I quote it in full as an excellent summary of the nasal conditions which I wish to consider, and also of most of the manifestations caused by them, as far as I have observed. The passage is as follows:[2]

"A spur on the septum, or a septum so deflected as to have its convex surface in contact with the adjoining turbinated body, hypertrophy of the middle or even of the inferior turbinated body, or any other form of nasal disease or deformity which may be accompanied by hyperesthesia of the mucous membrane of the nose, may produce reflex symptoms in the eyes. These may cause pain and photophobia, lacrymation, persistent or recurring conjunctival or ciliary injection, blepharospasm, accommodative or muscular asthenopia, etc." In other words, pressure-contact in the nose may cause symptoms like those of eye strain.

During the past few years I have been interested in studying these cases, with the object of determining, if possible, whether the combined nasal and ocular symptoms present any features sufficiently characteristic and constant to serve as a basis for making a *probable* diagnosis of nasal trouble.

The fact that subjective symptoms referred to the nose were usually absent, while pain in the eyes and head was often severe, made it a difficult matter to persuade the patient that he needed the services of a rhinologist rather than an oculist. I have succeeded, however, in obtaining a report on the condition of the nose in about 125 cases which were referred for examination because the eye symptoms were regarded as suggestive of trouble in the nose; and some form of contact was reported in fully 90% of these cases.

It seems reasonable to conclude, that in a majority of cases, the nasal factor (if present) may be recognized by its manifestations in connection with the eyes and head.

In general, the symptoms resemble those of eye strain, but on closer examination, certain anomalous features will be found, different from those due to a faulty refraction alone. Moreover, in addition to these subjective symptoms which simulate eye strain, a faulty nose may also cause *real* symptoms of eye strain through its effect upon the refraction.

Speaking broadly, an error of refraction is considered to be relatively constant in a given case, or else to change gradually in a definite manner as the result of some progressive trouble, such as myopia or incipient cataract. But in the presence of intranasal contact, the refraction is subject to striking variations, depending, apparently, upon changes in the amount of pressure in the nose, especially sudden changes. The refraction may be myopic to-day and hyperopic to-morrow; or, in case of astigmatism, the axis is liable to rotate through an arc of from 10° to 75°.

Among the symptoms observed as characteristic of nasal trouble, *headache* was the most constant. In many cases the patient was *aware* of the fact that he had *two* different varieties of headache, one of which was usually attributed to eye strain, while the other, which was apt to begin independently of any use of the eyes, was attributed to the "stomach," or the "nerves," etc.

The characteristic features of the nasal headache are: (1) That it may begin at any time whether the eyes are used or not. (2) That it is generally unilateral (at least, when it begins) and that it usually begins in some *one* definite part of the head, each attack beginning in the same place in a given case. (3) The pain becomes worse, if anything, when the patient lies down, while the act of walking or stooping results in a throbbing that is almost intolerable.

The morning headache, which is present on waking, and disappears within an hour or two after risisng, is almost invariably of nasal origin, due to congestion of the turbinate. When the patient gets upon his feet, washes his face, etc., the congestion and its resulting pressure tend to diminish and the pain ceases.

Symptoms of asthenopia, other than headache, — pain in the eyes, photophobia, injection of the conjunctiva, etc., — were usually associated with the headache; and the fact that they were not relieved by correcting the refraction was their only characteristic feature.

A very striking symptom in severe cases was a sense of confusion on attempting any mental exertion — if it involved the use of the eyes as well as the mind (as in adding a column of figures), the confusion of mind was more pronounced. In these cases there was also partial loss of memory and utter despondency — one patient expressed it in a word by saying that he was "a hopeless nervous wreck."

Personally, I have no doubt that the nose was responsible; but the only evidence I have to offer

* Read before the Boston Society for Medical Improvement, Dec. 5, 1904.

[2] Posey, p. 693, 2d paragraph.

is the fact that, in almost every one of the cases of this type, operation for the correction of the nose was followed by most gratifying results; the local symptoms of headache, etc., either disappeared entirely, or else became insignificant; while the general nervous and physical condition began to improve, and has continued to do so in some twelve or fifteen cases which I have been able to follow, the earliest dating back six years.

A faulty muscle balance was found in so few cases, and was so transient when it did occur, that its presence was regarded only as corroborative evidence.

Next to headache and the other symptoms of asthenopia, *anomalies* in the *refraction* were the most constant features of importance as an aid to diagnosis. The error was seldom the same in the two eyes; it was, in a large proportion of cases, astigmatic in the eye corresponding to the affected side of the nose (and also to the side of the head in which the pain occurred); the axis of astigmatism on the affected side was usually "against the rule" or oblique, and not symmetrical with that of the other eye, in case the latter were astigmatic; and (even more characteristic) the refraction was subject to the most erratic variations, frequently sudden, and due, apparently, to pressure changes in the nose.

In case of both sides of the nose being affected the symptoms are bilateral, and the diagnosis becomes more difficult, and depends upon the character of the headache, the asymmetry of the axes (if astigmatism is present) and the presence of a variable error of refraction; this latter point being often assumed at the first visit from the fact that the patient offers for inspection some half a dozen pairs of glasses, prescribed at short intervals, each change having resulted in temporary relief.

The effect on the refraction of an operation on the nose is very striking. I have notes on some sixty-five cases, most of which were refracted before and after operation. In those with simple hyperopia or myopia before operation, there seems to be a marked tendency for the error to diminish, while an astigmatic axis, "against the rule" or oblique, tends to rotate towards a position symmetrical with that of the other eye. In short, the condition tends to become more normal; and, still more striking, is the fact that the error changes from a *variable* to a *fixed* quantity, so that six or eight weeks after the operation, glasses may be prescribed with every prospect of success.

For the reports on the noses of my patients, I am especially indebted to Dr. Leland, Dr. Crockett, Dr. Goodale, Dr. Hammond and Dr. White, through whose co-operation I have been able to carry on my investigations.

IN WHAT CASES SHOULD EYE STRAIN BE SUSPECTED.*

BY EDWIN E. JACK, M.D., BOSTON.

The subject of my remarks is one of point of view, and although I shall, as far as possible, omit mention of the topics to be spoken of by other readers, there will necessarily be some repetition as my own subject touches naturally some of theirs.

When patients apply directly for the relief of eye strain it is usually because their symptoms are referred to the eyes themselves. The vision may be good or poor, but a blurring comes on immediately or soon after beginning to use the eyes, intensified in some cases to a swimming of the page, and clear vision can be got again only by shutting the eyes and resting. Or there is some form of asthenopia, — fatigue and discomfort or pain in the eyes during or following use or else in the head, — and headache must be recognized as one of the most frequent results of eye strain. Now is there any kind of headache which suggests an ocular origin more than others? Of course, when the pain comes on during or immediately after near use of the eyes and this repeatedly the inference is direct. Apart from this direct connection, however, headaches which are around or back of the eyes, frontal and occipital, are especially suggestive; temporal and of the vertex less so but not uncommon I think; the latter, however, in my experience, suggests a neurastbenic element. When these headaches, no matter what their situation, are independent in point of time, there is more doubt, but I have found that headaches on awakening in the morning and those coming on late in the day are especially suggestive. Even though they come on at irregular intervals of days or weeks only, there is yet the same possibility to be determined, in the absence of other more obvious cause by therapeutic test. In just what proportion of cases of migraine the nerve storm is caused or precipitated by ocular strain I do not know, but I have no doubt of the connection in very many, and it would seem to me a grave omission in all such cases not to put the eyes into the best possible condition for work, even when there are no local symptoms.

Further local suggestions of strain come from eyes which become congested in use or that have a chronic conjunctivitis and inflammation of the margin of the lids with crust formation and, it may be, with thickening of the lid and loss of lashes. There are indeed other causes of these conditions, but strain from faulty refractive conditions is a common one. Sensitiveness to light, too, unaccounted for by other conditions is suggestive of the same, and I can personally attest the relief afforded by glasses. Blepharospasm alone, or even accompanied by other twitchings, is often due in the same way to the imperfections of eyes, but of course not always, and they may be but a part of a more general chorea of other origin.

There are many people who cannot go to the theater, ride in cars or go shopping, without headache, vertigo, confusion or severe prostration following. Many if not most of these cases are to be explained by faulty refractive or muscular conditions; at least most of such cases that I see find relief when these faulty conditions are removed. The same explanation holds when similar symptoms come on in crowded streets or

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in watching games, etc. These cases as well raise the presumption of an ocular origin.

Faulty position of the head and neck may come, and I am sure not rarely, from defective muscle balance if not from astigmatism, and there may be in addition a marked influence on the development of the face. The head of a person with a tendency of one eye above its fellow will naturally assume a position requiring the least strain for the combined action of his eyes, and that position will be a fairly characteristic, certainly a suggestive one. It is easy to verify this on any patient having a paralysis of an ocular muscle; the efforts to avoid diplopia by a position of the head to favor the faulty muscle are readily understood, the head being turned toward the action of the affected muscle. I have operated on such cases with relief to decided asthenopia, and in one case, particularly, with the result of straightening the head and with very favorable influence in restoring the proper symmetry of the face which had developed in an unsymmetrical way. The further influence of eyes with muscular or refractive error on the spine will be spoken of by Dr. Kilburn.

Thus far we have spoken chiefly of symptoms which have a more or less obviously direct connection with the eye, but the possibility of eye strain must not, however, be overlooked in other things where the dependence is less apparent. Here we are on more uncertain ground, yet experience teaches that nausea, dizziness, dyspepsia, "the blues," nervousness and irritability, insomnia, brainfag, neurasthenia and a general inability to take up the burdens of life — may all be influenced, aided or brought about by the ever-present effort of the eyes to overcome an imperfect shape or balance. To one who has seen many times the mental wreck which eyes can cause, such a connection is far from incredible and indeed does not seem unusual. It is, of course, hard for many to see this standpoint. The man who reads in a moving, joggling car, with his glasses askew, and has always done so with no hint of discomfort, cannot understand why I, many times under similar circumstances and in a very few minutes, have nausea and an upset stomach. This would easily prove to me, even if I were not an oculist, that the eye can affect the stomach, and experience teaches me that it can be a factor in the other things as well. It would be easy, I think, to demonstrate some of these symptoms by wearing prisms placed in a certain way or by the use for a while of cylindrical lenses with wrong axes.

Whether we are to go further and suspect the eyes as the wreckers of lives, as in reported cases of Carlyle, De Quincey, Nietzsche, etc., or whether we are ever to consider that the eyes may be a factor in undermining the health and sowing the seed for disease, is a question that admits of much controversy and is therefore irrelevant at the present time. My own idea is that there is something of truth in the claim. This same thought leads to the problem of the relation of the eye to the development, tendencies and characteristics of the young. Dr. Greenwood will, I presume, touch on this matter; it is proper, however, that I should mention it from the point of view of my topic.

It is a peculiar fact that in the cases that we have been speaking of,— these of reflex nervous disturbance,— the patient may complain of the eye but little, and it seems to be the fact also that the greater the error the less the probability that the strain will show itself elsewhere than in the eye. It is not my experience that the converse of this is true.

It does not come within the scope of this paper to explain how these things happen, or why some should suffer and others with similar eyes go free. The defect is the same, but the individual different. I may say, however, that the presence of good or even normal vision has nothing to do with lessening the suspicion thrown on the eyes; in fact it increases it if anything. It is not what we see but how we see that is the important thing. It is the lesser degrees of error that cause the most trouble, slight degrees of astigmatism causing a constant nagging on the ciliary muscle not made to do such work. Greater degrees of error cause poor vision and poor vision maintained by no effort causes no strain. Nor, as we have said, should the suspicion thrown on the eyes be cast aside because the trouble does not follow directly the supposed cause; the drain may not empty the reservoir for some time. And finally we should not think the case ended from an eye standpoint when the first pair of glasses fails to have an influence on the symptoms. (A patient with unlike eyes may demand for his comfort, lenses of a certain relative strength, another one will be unrelieved by these and is comfortable only with what was refused by the first one. The mental upset often caused by glasses is seldom spoken of. These facts and others as well, make it impossible at times to be sure of good results at first, no matter with how much care and pains the work has been done.) "Fitting glasses" is not like fitting clothes.

It will be understood, I hope, that I have been speaking not of certainties, but of suspicions, and the suggestions which some symptoms give of the influence of eyes in causing or aiding in their production. An oculist will not give glasses for the relief of headache without inquiring closely into other conditions, and he will endeavor also not to confuse an asthenopia caused by ill health, which may not be relieved by glasses, with asthenopia of other kinds. I have pointed out, however, that certain apparently negative signs,— the existence of good or normal vision, the absence of symptoms in the eyes themselves and the lack of connection, in point of time of the symptoms with the use of the eyes, — are not in reality such.

DIFFICULTIES ENCOUNTERED IN THE PRESCRIPTION OF GLASSES.*

BY FRED M. SPALDING, M.D., BOSTON.

Many people, both medical and lay, have the idea that, if an oculist prescribes a pair of glasses, the

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patient should be able to wear them from the start without any discomfort. It is also expected that all the symptoms attributed to the eye strain should disappear forthwith as soon as the glasses are put on. But it often happens that a patient does not receive this immediate relief which has been expected, but not infrequently feels more uncomfortable for the time being. The oculist is then very apt to come in for a goodly share of criticism. It is the object of this paper to give some reasons why a fairly large percentage of cases should not experience this immediate relief, and why such cases should reserve their criticism until they have given their glasses a fair and proper trial. It is, of course, presupposed that the refractive error has been carefully and accurately determined, and, what is equally essential, the frames properly adjusted and the lenses accurately centered.

The visual act is concerned with a rather delicate co-ordination of various nervous and muscular factors. In a person with an error of refraction, this co-ordination tends in an abnormal manner to overcome the error in so far as it can. The older a person grows, who has an uncorrected error of refraction, the more habitual and automatic, so to speak, this abnormal co-ordination becomes. As would be expected from this, in the case of children it is the exception that one has very much difficulty in getting them to wear their proper correction, for the reason that the abnormal conditions of the visual act have not become so firmly established, but that they can be readily readjusted. In adults, on the other hand, it often requires a considerable time before the new co-ordination brought about by wearing glasses becomes thoroughly customary and automatic. Not until this does happen can one expect to get the full benefit from the glasses. For this reason, therefore, it is much better for one to put on glasses as soon as any symptoms of eye strain show themselves, rather than put off the "evil day" as long as possible.

The time in which one is becoming accustomed to wearing glasses is usually spoken of as the period of adaptation. As already intimated, it varies a good deal according to the age of the patient; from a matter of a day or two in children to two or even three months in old people. In prescribing glasses it is always wise, as a matter of routine, to inform patients that in all probability their glasses will not feel perfectly comfortable at first, otherwise they are likely to think that some mistake has been made, and may meet any subsequent explanations with a good deal of incredulity.

In addition to the question of age perhaps the most common cause that tends to prolong the period of adaptation is a faulty balance of the external ocular muscles. Under normal conditions both eyes are accustomed to fix the point of regard without any apparent effort. If one whose refraction is normal looks at a near object he has to use a certain definite amount of accommodation and at the same time an equally definite amount of convergence. The relation between these two factors is a very close one. An over or under stimulation of one tends to affect the other in a like degree. When a person has a refractive error, the normal relationship between these two factors is disturbed. A hypermetrope, for instance, has to use his accommodation in excess of his convergence. Consequently, in such cases there is an increased stimulus to convergence. Myopes, on the other hand, are obliged to use little or no accommodation, and consequently in them the stimulus to convergence is lacking. Hypermetropia is therefore, as a rule, associated with a convergence excess, or esophoria; myopia with a convergence insufficiency, or exophoria. It should be readily apparent that correcting the hypermetropia or myopia — and the same applies to a hypermetropic or myopic astigmatism — would tend to restore the normal relationship between the accommodation and the convergence. This, however, as a rule takes time, and not until the muscle balance is restored to normal limits will the eyes feel perfectly comfortable.

Other cases which find it difficult to get accustomed to glasses are those which show a marked difference in the refractive error of the two eyes. This condition of unequal refractive error is known as anisometropia. Physiologically it is impossible for the accommodative action to be exerted differently in the two eyes. Consequently in anisometropia a person cannot see distinctly with both eyes at the same time. For this reason the faculty of binocular vision does not receive proper cultivation. When the error in the two eyes is corrected, and the visual acuity equalized as nearly as possible, the condition of true binocular vision is frequently restored. This takes place as a rule only after a period of time. In anisometropia also we often find the most marked cases of faulty muscle balance. If the deviation is very marked, correcting the error in the two eyes may give rise to a troublesome diplopia. Before glasses were worn one or both of the retinal images may have been so indistinct as to be readily disregarded. Correcting the refractive error tends to sharpen the retinal images, and they then may become so distinct as to obtrude themselves on the patient's notice, and thus give rise to the diplopia. It should be the aim of the oculist to obtain binocular vision if possible. If patients will not tolerate the correction of both eyes, one has to be satisfied with correcting one eye and giving either no correction or a partial one in the other. Whether or not a patient will accept a double correction in these cases can, as a rule, only be told by trial.

Another condition which often gives rise to trouble when glasses are first worn, especially in young people, is spasm of the accommodation. Where young people are hard at work over their books they occasionally get their ciliary muscles into a state of tonic spasm. As a result, if they are hypermetropic, in testing them they may show a much smaller amount of hypermetropia than they really possess, or even

an amount of myopia. It is easy to see that, if these cases are given glasses which correct only the error manifest under the spasm, such glasses will not tend to relieve the condition, but may prolong or even aggravate it. When such a person is given a proper correction determined under a mydriatic, it will often take some time for this spasm of the ciliary muscle to relax, and until the relaxation is complete the glasses will cause a blurring of distant objects. One of the principal reasons, therefore, why all young people should have their refractive errors determined under a mydriatic is to avoid overlooking just this condition.

The causes already mentioned depend upon conditions present in the eyes. Besides these, glasses themselves frequently have the effect of producing changes in the appearance of objects, which oftentimes causes a feeling of confusion and discomfort.

First, glasses may change a person's idea of distance. Concave glasses tend to make objects appear farther off, while convex glasses have the opposite effect. One of the most frequent complaints of which an oculist hears is the trouble a person has with new glasses in going up or down stairs, stepping on or off curbstones or electric cars, etc. One has the feeling that the steps are nearer or farther off as the case may be, and the mistaken judgment in the distance has occasionally led to rather disastrous results. It is always wise, therefore, to caution patients against this.

Again, glasses may tend to change the apparent size of objects; concave glasses causing a reduction and convex glasses an increase in size. Myopes, as a rule, with their concave glasses, complain considerably of the reduced size of objects, and not infrequently one is obliged to reduce the strength of their reading glasses, because they cannot become accustomed to the apparent reduction in the size of print.

Again, glasses may cause trouble by altering the apparent shape of objects. This is particularly true of cylindrical glasses in astigmatism, especially if the axes of the astigmatism are oblique. The effect is to make square objects appear oblong, or more frequently still trapezium shaped; *i. e.*, narrower at the top than at the bottom. They also frequently make horizontal surfaces appear sloping. Prismatic glasses, prescribed for muscular insufficiencies, have very much the same effect. All these changes, as a rule, are not noticed after the glasses have been worn for a short time, and it is seldom that one is obliged to modify his prescription for these reasons.

The prismatic effect of looking obliquely through glasses is also rather disturbing to the novice. When the line of sight passes outside of the optical centre of an eye-glass, a prismatic displacement of objects takes place, and, as a rule, also objects become less distinct. This effect is of course greater the stronger the lenses. In order to overcome this difficulty, it means that a person must turn his head and look directly at an object rather than turn the eyes. There has within a few years been introduced a special lens called the toric lens, which is designed to correct this difficulty. These lenses are ground convex on the outer side, and in such a way that the curvature of one meridian is a longer or shorter curve than the meridian at right angles to it. This has the effect of producing a combination of a convex spherical surface with a convex cylindrical surface. The outer surface is made quite markedly convex. To compensate for this the inner surface is made sufficiently concave to bring the strength of the lens to what is required. With these lenses it does not make much difference where the line of sight cuts them, as one gets everywhere practically the same lens equivalent. These lenses are a great comfort to a person who has to wear a strong glass, as by them they are enable to obtain a much larger and clearer field of vision.

Clinical Department.

BOSTON CITY HOSPITAL CLINICAL MEETING.
DEC. 8, 1904.

DR. LUND in the chair. DR. CRANDON, secretary. The following cases were shown:

A CYST OF GARTNER'S DUCT EXTENDING FROM THE VAGINA INTO THE PARAMETRIUM.

BY ERNEST BOYEN YOUNG, M.D., BOSTON,
Second Assistant Visiting Physician for Diseases of Women, Boston City Hospital; Assistant in Gynecology, Harvard Medical School.

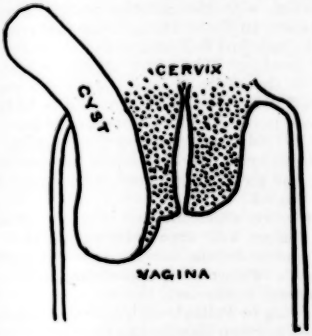
The smaller cysts of Gartner's ducts are not uncommon in the adult, and undoubtedly the fetal structures, from which these cysts take origin, are present much more often than the literature of the subject would lead us to suppose, as they are seldom apparent unless the seat of pathological changes. The larger cysts, extending from the vagina into the broad ligament, are rare: for this reason the following case is reported.

Mrs. Q., thirty-six years, married, was seen with Dr. E. C. Hixon on June 17, 1904, in regard to operative treatment for procidentia. Seven months previous she had been delivered of a large baby by a difficult high forceps operation.

Physical examination: Well developed and nourished woman. Heart and lungs were negative. The abdominal wall was flabby and deeply marked by striæ. The perineum was relaxed with bilateral tears extending into each posterior sulcus, and the retroverted uterus could be forced down to the entrance on straining. There was a large rectocele and small cystocele. On the right side of the cervix, partially imbedded in its substance, was a cyst which extended out toward the vaginal fornix, the general appearance of which is shown in the drawing. It was not tense and the fluid could be forced upward through the vaginal wall by pressure upon the lower end.

While under ether, an opening like a button-hole could be felt in the right lateral fornix. This was about 1½ cm. in diameter. The general shape of the cyst was that of the finger of a rubber glove, — long and slender, — possibly 6 cm. in length.

The caliber was quite the same throughout except at the lower end which was bulbous, as here the wall was evidently stretched and rendered translucent by the constant gravitation of the fluid within. After incision the little finger passed with ease through the slit in the vaginal wall and for about 3 cm. beyond; at which point the cyst ended in a rounded extremity. Examination with a small silver probe failed to reveal any further extension. The contained fluid was clear



and watery with a slight mucoid consistency, which caused it to flow more slowly than the usual contents of the parovarian cysts. The diagrammatic section explains the relation of the sac to the surrounding structures.

The inside was lined with a smooth shining membrane closely connected with the cyst wall, the histology of which is shown by the drawing from a microscopic section of the portion removed at operation.

I am indebted to Dr. H. C. Low, of the Children's Hospital, for the following pathological report:

"Specimen is a bit of tissue, hardened in alcohol, thin and curved so that it is apparently the thin wall of a cavity. It is nearly 2 cm. in length and at the larger and thick end is 2 cm. broad and ¾ mm. thick; at the small end it is 1.5 cm. broad and 1 mm. thick.

Section of the larger end shows on the outer convex surface the typical mucous layer of the vaginal wall. The main part of the section is made up of very vascular muscular tissue; it is in most part quite normal, but in places just beneath the mucous layer these small collections of small round mononuclear cells is evidence of a slight chronic inflammatory process. The inner concave surface is lined with a single layer of columnar epithelium.

Sections farther up, near the smaller end, show similar general structure; except that the main part of the wall is thinner, less vascular, and shows a more marked increase of fibrous tissue and small round mononuclear cells. This chronic inflammatory process is more marked near the mucous surface, while adjacent to the inner surface the tissue is more vascular and slightly edematous. The columnar epithelial cells are in these sections larger, taller and in some places are piled up several deep, forming folds. They are not flattened nor desquamating. They are not ciliated, though in some places they are drawn out to a point and show what may be the rudiments of cilia."

Previous to the repair of the perineal tear, the vaginal portion of the cyst wall was removed and the lining membrane of what remained touched with crude carbolic acid.

The wound healed without complications.

I am able to find but three cases, beside my own, where the cyst extended from the vagina into the parametrium. These were published by Watts,[1] in 1881; Veit,[2] in 1882; and Routh[3], in 1894.

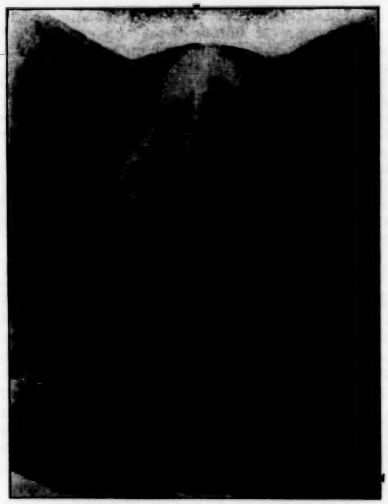
In Watts' patient the cyst was in the anterior vaginal wall, simulating an urethrocele. After incision, a probe passed upward could be felt midway between the umbilicus and the left anterior superior spine of the ilium. He considered that it entered the abdominal cavity.

In the case reported by Veit, the cyst was the size of a child's head and protruded from the vagina making micturition difficult by pressure upon the urethra. The uterus was displaced to the left by a tense elastic mass in the right broad ligament. The vaginal cyst was opened and a piece cut from its wall to insure drainage. The finger easily passed through the vaginal cyst into the cavity in the broad ligament, on the posterior wall of which the ovary could be felt.

Routh's interesting case apparently consisted of two infected cysts, one in the vagina and the other in the broad ligament, connected by the somewhat dilated portion of the duct which lay between them. The vaginal cyst discharged its contents through another portion of the duct, which ended just beneath and to the right side of the urethra on the anterior wall. He was able to pass a probe along the whole vaginal tract, and for a distance of five inches into the right broad ligament. The entire vaginal tract was laid open and the broad ligament cyst drained by this means.

Two adult cases have been described in which ducts remained patent and discharged their contents at the vestibule just below the urinary meatus (Lawson Tait,[4] Milton,[5]); one which

emptied into the urethra (Skene[6]); and two with collections of pus or fluid in the lower part of the duct, which in Kelly's patient, could be traced from close beside the cervix along the antero-lateral wall to the ventibule, on a level with the posterior wall of the urethra. Numerous writers have reported small cysts, and according to Kelly,[17] both Veit and Kiwisch cite instances in which small cysts were distributed along the wall of the vagina over the course of these structures.



Under the name of Gartner's ducts we understand the vestigial remains of the Wolffian ducts in the female. In herbivora and in some other animals, these embryonic structures are present to a greater extent than in man; and were described in the cow by Malphigi[7] in 1681 and again by Gartner in 1822,[9] by whose name they are known.

Until the past decade, little has been written upon the persistence of these ducts and the pathological changes resulting from their presence in the adult. Bland Sutton,[10] in 1886, published his observations upon this structure in the cow; and in 1894, Routh read a paper before the Obstetrical Society of London, at the close of which are references to the principal articles up to that time. Since that date, the number of reported cases has multiplied and in the papers of Klein,[11] Vassmer,[12] Thumin,[14] Kossman,[13] and Meyer[15] will be found a very complete summary of the subject.

The exhaustive articles of the writers mentioned above make it hardly worth while to more than attempt to summarize the very conflicting reports of various investigators.

Concerning the general course of the duct there seems to be little doubt. It runs in the broad ligament, underneath the Fallopian tube, and sinks into the uterine substance at about the level of the internal os. From this point it continues downward and inward into the upper part of the vaginal portion of the cervix, where it turns upon itself in order to reach the vault of the vagina. Arching over the vault at the side, it extends along the lateral wall of the vagina, near its junction with the anterior wall, and eventually comes to lie in the anterior wall; ending in the hymen just behind and a little to one side of the urethra. The duct pursues a tortuous course in the walls of both uterus and vagina, giving off diverticula which are said to be larger and more numerous in the uterine tissue.

Usually only scattered portions persist, and from these, cysts may develop in any part of its course, but are most frequent in the upper third of the vagina.

The relation which the duct bears to the layers of the vaginal wall apparently varies, as it has been found under the mucous membrane, among the muscle fibers of the vaginal wall, and in the para-vaginal connective tissue.

According to Pollak[8], vaginal cysts come under eight heads, when classified as to source of origin: I. Cysts of the vaginal glands. II. Cysts of Muller's ducts. III. Cysts of Gärtner's ducts. IV. Cysts of the glandular structures about the urethra. V. Cysts formed by the dilatation of the lymph channels. VI. Cysts of the ureters (supernumerary or otherwise). VII. Cystic structures, formed by separation of tissues, into which there is an outpouring of lymph. VIII. Cystic degeneration of a thrombus. To these we may add: IX. Inclusion cysts in old scars after operation or trauma. Only a few of the sources mentioned need any special consideration here.

The first class appear in any part of the vagina, especially on the posterior wall; are small and superficial, often in clusters, and filled with thick, viscid contents. As a proof of this etiology, we should find near by either dilated or normal glandular remains, glandular structures in the cysts wall, or a duct leading from the cyst to the vagina. The cells of the epithelial lining are apt to be flattened. In the cysts which arise from portions of Muller's duct we may expect, a cylindrical epithelium which is ciliated in places, large infoldings of the cyst wall, and signs elsewhere of the partial persistence of the fetal conditions. The lymphangiectatic cysts show their origin by the relations to the surrounding tissues and their lining of endothelial cells. The inclusion cysts arise in the old scars about the lower part of the canal, and are the result of small portions of the mucous membrane becoming buried during the healing of lacerations of parturition or the wounds of operation. The cysts which arise from Gartner's ducts in the vagina are usually of small size; contain a watery, slightly mucoid fluid; are attached to the wall by a broad base; and usually occur in the vaginal vault and along the lateral wall of the vagina in its upper

third. They are rarely formed on the anterior wall near the entrance.

Concerning the microscopic structure of the walls of these cysts, as well as of the walls of the ducts themselves, opinions differ. Some investigators hold that muscle fibres exist; others find only connective tissue outside of the lining epithelium, which in its turn may be columnar, pavement or even a combination of both. Two writers report ciliated, cylindrical epithelium; and papillary structures, as well as glandular depressions have been described in the walls.

So far as can be made out from the somewhat conflicting literature of this subject, the topographical situation of the cyst is the most conclusive proof of its origin.

They occur for the most part in the vaginal vault and in the middle of the lateral wall of the upper third of the vagina; although in the lower part they may appear on the lateral portions of the anterior wall. When in the latter situation, the fact should not be lost sight of that dilatations of the ureter (Kelly) sometimes appear in this locality, and also that suburethral abscess might simulate such a cyst. Routh also reports a case of uterus bicornis septus with one rudimentary and occluded vagina which, owing to its location, might easily have been mistaken for a cyst of Gartner's duct.

The lining membrane, according to Vassmer, is quite often a combination of cylindrical and pavement epithelium with or without transitional forms. Occasionally ciliated, cylindrical epithelium is found in spots. Von Recklinghausen[16] has described papillary structures, which Vassmer considers uncommon, and which must be differentiated from the glandular depressions so common in these cysts. The same writer considers that muscular and connective tissue layers, belonging properly to the cyst wall, have not been demonstrated, and that their absence does not prove that such cysts are not of Wolffian origin.

The diagnosis in the case presented is the more certain in that while fulfilling the ordinary requirements, it in addition extended in an elongated, finger-like form into the parametrium toward the parovarium.

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A CASE OF ASTASIA-ABASIA.

BY MORTON PRINCE, M.D., BOSTON.

By astasia-abasia is meant a loss of the use of the legs for standing and walking, although the patient may have complete control of them for other purposes.

Mrs. M. A., age sixty-seven, went to bed one evening nearly two years ago in her usual health. On waking the next morning she was unable to use her left leg for walking. She has remained practically in this condition ever since although she is able to walk on crutches.

When first seen, Nov. 9, 1904, her condition was the same as it is now, excepting that this syndrome has improved somewhat under treatment. When her crutches were taken from her she was unable to take a single natural step and was able to progress only by advancing her feet about an inch at a time by a sort of scuffling movement, comical to observe. You will now see that with the aid of her crutches she is able to walk fairly well co-ordinating the movements of the left leg with those of the right with considerable freedom. You will notice also that while supported on her crutches she has complete control over the movements of the left leg moving it about freely. The strength of the movements is also good. But when I take away her crutches while walking she comes at once to a standstill and is unable to progress excepting by a short mincing and awkward movement which practically prevents locomotion.

Physical examination in other respects is entirely negative (including sensation, knee jerks, pupils, tonicity of muscles, etc.).

The trouble is plainly not paralysis, but a loss of the power to co-ordinate the movements of the legs for walking, while co-ordination for other movements is retained. In other words, only particular movements are lost. The recognition of this syndrome is of some medico-legal importance as it is not infrequently claimed that a claimant is a malingerer, or, because, while claiming a loss of certain movements of a limb, he has been found to manifest others. The more common pathology of this affection is hysteria. Whether all cases are of this nature is a question about which there is much uncertainty. There are no other evidences of hysteria in this case, nor is there any history of fright, shock or of any of the causes which give rise to hysteria, yet it is difficult to ascribe the trouble to any other pathology.

EXCISION OF WRIST.

BY H. L. BURRELL, M.D., BOSTON.

This young woman, twenty-three years of age, a saleswoman, I operated upon in December of 1902. She appeared two weeks previously at the Out-Patient Department. At that time she gave the following history: In 1899 began to have pain and weakness in left wrist which she thought was due to the strain of carrying a heavy skirt. A short time later she noticed that there was a swelling the size of a quarter of a dollar on the back of the hand over the carpus. Three or four times every year since then she has had attacks of acute swelling and tenderness over this area, and this has extended to the base of the fingers and to above the wrist. Of late there has been great pain, tenderness and weakness of the hand. Between these attacks the wrist was weak, slightly tender and swollen. During the past four weeks the rotation of the wrist has been limited. The wrist had been treated outside by immobilization for a time — under the diagnosis of osteo-arthritis.

The local examination showed that the left wrist had a diffuse, somewhat tense swelling extending from 2½ cm. above the styloid process of the radius to 1½ cm.

below the metacarpals. Directly over the carpal bones is a localized dome-shaped swelling with a base the size of a fifty-cent piece. This area is soft and tender. Supination is limited about one half and there is considerable pain and tenderness about the wrist. No heat nor redness. A skiagraph was taken which seemed to show a single focus and limited disease. A second, taken as a check, gave an identical picture, the clouded outlines so characteristic of tuberculosis limited to the articulations of the mediocarpal joint and a small definite focus in the os magnum. Patient reacted to a tuberculin test.

The patient had been under Dr. Cotton's care in the Out-Patient Department and owing to the apparently limited involvement of the bones of the wrist-joint he felt that an operation might be done with benefit to the patient. The following operation was done on Dec. 12, and consisted essentially of Ollier's excision of the wrist joint: The distal row of carpal bones was removed and the metacarpal bones brought up to fill the space. Under ether, with a tourniquet applied, a vertical incision was made through the skin beginning 2.5 cm. above the styloid process of the radius, and was carried down to the middle of the second metacarpal bone. The carpal bones were exposed by careful dissection and the attachment of the extensor carpi radialis brevior was cut away from the third metacarpal bone. On opening the joint between the semilunar and os magnum a mass of jelly-like synovial membrane, apparently tuberculous, was found. To facilitate the removal of the first row of carpal bones a second incision was made on the inner side of the wrist from just above the styloid process of the ulna to the middle of the fifth metacarpal bone. The tendon of the extensor carpi ulnaris was exposed and separated from its attachment to the pisiform bone. Working through these incisions the cuneiform, semilunar, scaphoid and os magnum were removed. The principal focus was apparently in the semilunar bone and on the adjacent surface of the os magnum, the articular surface between the two being bare of cartilage. The fascia was stitched with fine catgut over the tendons in these two incisions. The skin was closed with continuous catgut, and a small rubber drain was inserted into the joint. A sterile dressing and a splint were applied, and the tourniquet was removed.

The divided structures united by first intention. Patient was out of bed at the end of twenty-four hours and was discharged from the hospital in twenty days. For a long time she wore a light plaster bandage applied to the hand, wrist and forearm and this was later changed to a leather armlet which was worn for nearly six months. Patient now has a perfectly useful hand, forearm and wrist. She states that there is nothing in the work of the day that she cannot do with her hand. There is definite limitation of both flexion and extension. The case may be considered to be cured.

In view of the commonly unsatisfactory results following excision of the wrist, this case seems to indicate that early, thorough removal of the diseased carpal bones, even where the whole carpus is not excised, will prove to be a very satisfactory operation.

MALIGNANT PUSTULE OF THE LIP; ANTHRAX SEPTICEMIA; OPERATION; RECOVERY.

BY L. R. G. CRANDON, M.D., BOSTON.

This man, age forty-five, single, had been handling Egyptian and Russian wools for a week. Four days before admission he scratched his under-lip while shaving; two days later he noticed a sore blister just below the red edge of the lower lip; in twenty-four hours this sore had become hard, red and pustular.

The patient walked to the hospital (Dr. Burrell's service), not feeling very sick, pulse 80, temperature 100°. The situation and general appearance of the face are shown in this sketch by Dr. Cotton (Fig. 1)

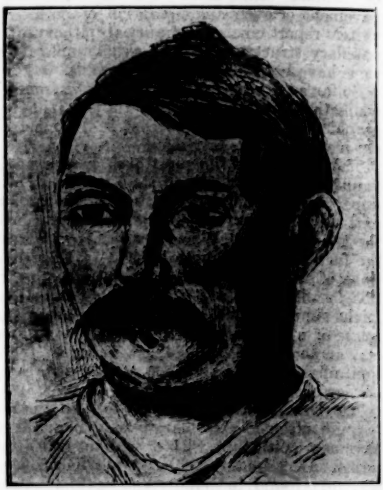

FIG. 1. — Malignant Pustule of the Lip.

who kindly saw the case with me. On the skin of the middle of the lower lip was a black crust as big as a thumb nail, forming the roof of a confluent pustule. Immediately round this was a bright red zone, ¼ inch wide, with two or three minute vesicles on it. The left face, the chin and neck down to the level of thyroid, presented a puffy swelling without change of color.

The pustule with its immediate red zone was excised in a v-shaped section of the whole lip, and the wound closed with silver wire and silkworm gut.

Blood cultures, taken from the veins of the right elbow flexure at the time of operation, showed the anthrax bacilli. Twice in the succeeding eight days blood cultures were positive, after that negative. In other words we had here a true anthrax septicemia.

During the week following the man had a right-sided pleurisy with temperature up to 103°. The amount of fluid did not warrant tapping. The wound healed rapidly and the patient was discharged after twenty-five days, well.

EXCISION OF THE WRIST FOR ADVANCED TUBERCULOSIS.

BY F. J. COTTON, M.D., BOSTON.

The patient, a young woman of twenty-six years, was admitted to the hospital March 9, 1904, as a tuberculosis of the tendon sheaths. She had had trouble with the right wrist for over a year, growing steadily worse.

General health and nutrition were excellent. The right wrist showed marked spindle-shaped swelling, prominent, especially at the back of the carpus and anterior to the head of the ulna. On careful examina-

tion the joint was seen to be the site of disease, apparently tubercular and advanced to the point of disorganization. The motions of the wrist were very slight, the fingers much limited in range of flexion and practically useless. A tuberculin test was positive.

X-ray examination showed a typical disorganized wrist joint involving the mediocarpal joint and the radiocarpal as well.

Operation, proposed and accepted, was carried out March 18, 1904.

Ollier's incision on the back and outer side of the wrist exposed the disease. The tendon sheaths were not affected, but the wrist joint completely disorganized. A second incision on the ulnar side and the cutting of the external carpi radio tendons exposed the joint freely. By a tedious dissection the proximal row of carpal bones, much of the substance of the distal row, a considerable amount of the diseased radius (about three quarters of an inch above the destroyed articulation) were removed together with all discoverable disease. The periosteum was removed where recognizable. The joint was then flushed out with salt solution, swabbed out with pure carbolic acid for one minute and flushed with alcohol. The end of the ulna was shortened to level up the false joint; the cut tendons were sutured with catgut and the wounds stitched loosely with catgut, blood clot being allowed to fill the dead space. Drainage was used only on the ulnar side anteriorly where there had been a beginning abscess under the skin.

The arm was put up on a splint. Drainage was removed in two days and the wounds healed within a short time, practically *per primam*. There was never any pus. The patient was discharged April 6, 1904, to the Out-Patient Department. The pathologist's report was tuberculosis. Dec. 2, 1904, she was again seen. The wrist had been fixed in apparatus until a month before. There had been no trouble, but until three weeks ago the muscles had not shortened enough to accommodate for the bone gap and the fingers had been useless. Now the wrist shows redundant tissue and one and one-quarter inches shortening. There is no sign of disease. All wrist motions can be carried to the full range voluntarily. All motions of the thumb and fingers are normal except that flexion is only about one half. If the wrist is grasped firmly to support it, flexion is markedly better. The motion is still improving. She is to have a leather wrist support for a time.

This case appears to be cured though this cannot yet be called certain. It does, however, illustrate the operative possibilities in severe and advanced tubercular wrists.

The free wrist motion in this case is surprising, and may be an argument for an extensive excision rather than a more conservative treatment. On the other hand the long uselessness of the hand after operation (from too long muscles) is certainly a result of the extensive removal.

RENAL CALCULUS; HYDRONEPHROSIS; REMOVAL OF STONE FROM KIDNEY.

BY H. L. BURRELL, M.D., AND F. J. COTTON, M.D., BOSTON.

About a year and a half ago patient had an attack of pain in lower right abdomen running down into right groin; the leg was drawn up. Pain was so severe as to require morphia. Never passed any stone or gravel so far as known. Has had no similar attack since, but has had more or less dragging pain in right side and loin ever since with occasional attacks of severe pain in the right side.

Patient entered the hospital June 1, 1904, for attacks of pain similar to the present. Had occasionally a little blood in the urine before entry, but not after entrance.

Physical examination was entirely negative except for vague tenderness in the right loin. There was nothing to be felt. Patient complained of some pain in the right loin, but also for a day or so of like pain on the left. Repeated urine examinations were negative. An x-ray plate was taken and showed nothing. No diagnosis was made and he was discharged. He continued to have pain and occasional blood in the urine.

Early in November he came into the Genito-Urinary Out-Patient Department. He had then been laid up for several days with severer pain than usual in the right side without fever, vomiting, or nausea, but with some chill.

Physical examination on his first out-patient appearance absolutely negative. Urine also negative.

He was told to report from time to time, a diluent (placebo) being given.

A few days later blood showed in his urine. The specific gravity was 1,016. The reaction acid. Microscopically there was no pus, but considerable blood and pelvic epithelial cells loose and in flakes in quantity.

An x-ray was taken which showed a very doubtful shadow which might be a stone. A second x-ray was a failure. It was believed that the case was one for exploration for stone.

An operation was done on Dec. 16, 1904. The patient was placed on a Cunningham table; the conventional incision was made in the loin on the anterior border of the quadratus lumborum, and the suprarenal fat was exposed, incised and reflected from the surface of the kidney. The kidney which was rather flaccid, was delivered out of the wound and held in position by gauze tapes which served to expose its various surfaces. A fluctuating pouch was found on the outer surface of the pelvis of the kidney 3 to 4 cm. in length, and 5 to 6 cm. in width. This pouch seemed to be a dilatation of the pelvis of the kidney. An incision 2 cm. in length was made into the pouch; a gush of yellow-colored fluid (urine) followed; the finger was introduced and revealed a smooth cavity which involved the lower lobe of the kidney to within 5 mm. of its cortex. The estimated capacity of this pouch in the pelvis of the kidney and encroaching into the substance of the kidney was about 75 cc. of fluid. A small stone the size of a waistcoat button was detected and removed. An attempt was made to find the orifice of the ureter, but it did not seem wise to persist in finding the ureteral orifice. Three or four catgut sutures were placed in the incision in the hydronephrotic pouch. The kidney was replaced, rubber dam drainage was carried down to the region of the pelvis of the kidney; catgut sutures (interrupted) restored the incision through the muscles, and silkworm-gut sutures were used in the skin of the loin.

The stone, which was weighed and examined by Dr. Emerson, had the following dimensions and composition: Weight, 0.767 gms. The outside is chiefly phosphates (blood); the nucleus, uric acid (carbonates ?).

The patient suffered little pain; the urine was little bloody for twelve hours; there was hiccough and belching of gas for several days following the operation which required a couple of drops of turpentine on sugar and occasionally morphia to relieve. The patient beyond this has not suffered any pain or discomfort and has apparently completely recovered.

The patient illustrates the importance of not accepting the negative evidence of x-rays. The fact that the patient was invalided, that blood and pelvic epithelium were found in the urine, led Dr. Cotton to believe that it was safer for the patient to have an exploration made, if it were feasible. I had not the slightest hesitation in recommending the exploration of the kidney. If there are symptoms referable to a kidney which incapacitate the patient, it must not be forgotten that even if the kidney is exposed a stone may be overlooked. The case emphasizes the necessity of considering all the symptoms presented by a patient rather than depending upon a physical sign of an x-ray examination, in deciding whether an operation shall be done or not.

A CASE OF SLOUGHING FIBROIDS.

BY ERNEST B. YOUNG, M.D., BOSTON.

D. N., born in Ireland; age thirty; married; entered hospital Aug. 3, 1904. Metrorrhagia for the past three months. Pain in right side of lower abdomen which varied in severity. Had noticed a hard swelling in right lower abdomen for some weeks past. During the last week before entrance had two severe chills and some fever. Menstruation, always regular until present trouble. Three children: all natural deliveries; last thirteen years ago.

At entrance the diagnosis of sloughing fibroid was made. A round irregular mass could be felt in the right side, rising beyond the level of the anterior superior spine of the ilium, which was evidently connected with an enlarged fibroid uterus. Patient had several chills, and an elevation of temperature during the ten days after admission. Leucocyte count 16,400. The patient steadily refused all operative treatment and suffered from chills, pain, delirium and fever from time to time during the next two weeks. She then improved until Sept. 25, when her temperature again rose and she grew much worse. Her general condition in the meantime had become very poor, when, on Sept. 29, she consented to an operation.

An incision was made over the mass in the right flank and about two ounces of thick pus evacuated. The cavity was drained and the patient did fairly well until Oct. 21, when her temperature and pulse again rose and she suffered from chills.

On Oct. 27, a sloughing fibroid was removed from the uterus through the vagina leaving an opening in the uterine wall. A strand of gauze for drainage was carried from the abdominal wound through the opening in the uterine wall into the vagina. After this the patient improved and the discharge lessened until Nov. 18, when it increased and was very foul. She then had another chill, and on several occasions there were severe hemorrhages when the wound was dressed. This reduced the condition of the patient to such an extent, that up to this time it has been impossible to operate. The abdominal wound still discharges foul pus and a sloughing mass can be seen close to the abdominal wall on both sides of the abdominal incision, which now gaps about one and one-half inches.

During the last few days no hemorrhage has occurred and the patient's condition is somewhat improved. At the first opportunity the most radical measures will be undertaken, although operation in the present condition of the patient must be considered as offering but a very slight hope of recovery, as we know from the experience of the previous operation that the adhesions are dense and the operation must be a prolonged and tedious one.

RENAL CALCULUS; NEPHRO-LITHOTOMY; RECOVERY.

BY F. S. WATSON, M.D., BOSTON.

M. W., schoolgirl, fourteen, single.

Family history: negative.

Pertussis as infant. Typhoid fever, 1898; appendectomy in 1902.

Admitted to medical service, Nov. 23, 1904, with history of having caught cold five days previous. Vertigo and headache. Vomited twice. Most prominent symptom was pain in right lumbar reigon intermittent for five days previous to entrance and now radiating. Parents never noticed any blood in urine neither did patient. X-ray showed stone in kidney.

Skiagraph taken by Dr. F. H. Williams, showed a calculus of the size and shape of a Lima bean near the upper end of the right kidney and a shadow suggestive of another one in the left kidney. The latter was, however, of uncertain character.

Operation: Dec. 1, 1904. The right kidney was exposed by a lumbar incision parallel with the outer border of the quadratus lumborum. This incision was supplemented by a second one extending from its upper end and along a line parallel with the lower border of the twelfth rib as far as the peritoneal reflection from the abdominal wall, in order to gain more space which was made necessary to have because of the presence of numerous adhesions which rendered it difficult to isolate the kidney and to bring it out upon the loin. The latter maneuver having been accomplished, the kidney was palpated without success in the detection of the calculus. The pedicle was then caught between the index and middle finger and the organ was split in two by an incision carried through its convex border and down to the pelvis. The kidney calyces were moderately dilated and pyonephrotic. It was lobulated, especially at its upper end.

The upper quarter of the organ was markedly sacculated and its tissue was exceedingly friable and in one or two places the sacculæ were very thin-walled, and in searching for the cacculus, the tip of the finger was pushed through one of them. This hole was immediately closed by two chromicized catgut sutures. The stone was found in the spot in which it appeared in the skiagraph. The calculus having been extracted by the finger, the kidney incision was closed tight by interrupted catgut sutures passed transversely through the organ and tied immediately above the convex border. This arrested all hemorrhage at once. The lumbar wound was closed except for the space to allow the passage of three iodoform gauze wicks which were led to the spaces above and below the kidney and from the middle of the organ respectively, through the open part of the lumbar wound. The drains were removed on the third day.

With the exception of a small granulating area, the lumbar wound united by first intention and at the end of sixteen days the patient had completed an uneventful convalescence. Not a single drop of urine has escaped from the kidney through the wound. The latter feature is in this instance the most interesting factor of the case to me, because of the fact that the kidney tissue was exceedingly friable and in the place injured by the finger, it was denuded of its fibrous capsule and afforded a most unreliable holding ground for the suture. Whenever the kidney can be brought out upon the surface of the loin without putting undue force upon the pedicle, it is of the greatest advantage to draw it through the lumbar wound on account of the command which it gives the operator of all the steps which have to do with the kidney part of the operation.

CASE OF PLASTIC OPERATION ON HAND AND FOREARM FOR CICATRICIAL CONTRACTION FOLLOWING BURN.

BY H. A. LOTHROP, M.D., BOSTON.

This patient is eighteen years of age and when six years old she sustained an extensive burn of left hand and forearm which left a granulating wound. As a result there has been cicatricial contraction drawing the hand directly toward the ulnar side so that the hand and forearm were nearly at right angles. The little finger was much adducted toward the ulnar side and considerably flexed. The hand has been in this position for a number of years during which time patient has attained most of her growth; consequently, there is some developmental deformity of the hand as a whole. Extending from the base of the terminal phalanx of the little finger to a point nearly half way up the forearm is a double fold of skin which appears like a web, in the free edge of which a more dense cicatricial cord can be felt. Motions at the wrist and of the little finger are considerably limited.

Operation: Two v-shaped incisions were made for the purpose of obtaining two flaps of skin with the apices of the flaps directed downward. The apex of the lower flap was situated about opposite the middle of the terminal phalanx of the little finger. The apex of the upper flap was about opposite the wrist joint. At this level the incisions started from the free edge of the web obliquely upward on the anterior and posterior surfaces of the web itself. These incisions were extended sufficiently to free the skin from adhesions to the deeper parts. A tenotomy was done on all the muscles of the hypothenar eminence close to their insertion so as to free the little finger. When the skin was freed the hand and fingers could be brought into a normal position. While held in this position sutures were applied in such a way as to convert the v-shaped incisions into y-shaped figures because of the drawing upward of the apices of the flaps. The wound healed with but little interference with the nutrition of the skin. At the present time it will be observed that the outline of the hand and forearm is practically normal, that the web of skin has entirely disappeared, and that the motions of fingers and wrist are practically normal.

CHOPART AMPUTATION.

BY H. L. BURRELL, M.D., BOSTON.

This patient, a teamster, twenty-three years of age, came into my service on the 3d of October. He had been in the hospital twice before with necrosis of the fifth metatarsal bone, and at another time with perforating ulcer of the foot. He has a history of syphilis and has symptoms which indicate that the ulceration on his foot is dependent upon a nerve lesion. There is now a perforating ulcer, the size of a dime, on the sole of the left foot at the base of the great toe, and a smaller one at the base of the third toe. The fifth toe has already been amputated. The tissues of the anterior portion of the foot were infiltrated with purulent exudate and it was finally decided to recommend amputation. The patient objected to amputation at the point of election on the leg and preferred to have one of the foot amputations done. He was told that they were not as satisfactory as leg amputations in fitting an artificial limb, and after some consideration he decided to have an amputation of the foot done.

On Oct. 24 a Chopart amputation was done. The tendons in the plantar flap were sutured to the anterior tendons by a Pagenstecher thread. The plantar flap was ample. The tendon Achilles was subcutaneously divided. The patient has recovered without incident and now has an excellent stump on which he can bear weight.

Foot amputations have been largely discarded, particularly Chopart's, principally because the weight is transmitted to the anterior portion of the foot and the scar of the Chopart is drawn downwards, pressed upon in walking, becomes tender, and is believed to render the foot practically useless. A good artificial leg cannot be fitted well to a foot amputation, although Marks, I believe, considers that he can fit an artificial limb to an amputation of the foot. However this may be, a Chopart amputation is at present rare, and it is a question whether the result will be useful to the patient. I shall watch the progress of this case with interest, believing as I do that there is a great deal of tradition in discarding amputations of the foot.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D., BOSTON.

PATHOLOGICAL HISTOLOGY OF CHRONIC OÖPHORITIS.

CARLO PINTO[1] has made histological examinations of twenty-three ovaries in twelve cases of chronic oöphoritis operated on in a hospital at Dresden, with the following results: The alterations of the stroma vary; in some there is a simple hyperplasia of the connective tissue elements, while in others the alteration is so complete that the substance looks like a mass of connective tissue. In other cases the cortical zone shows all the follicles atrophied and changed to connective tissue. The blood vessels show a hyaline degeneration of the intima and media, and a small celled infiltration around them. There is a vascular hyperemia, especially about the follicles, and hemorrhagic foci in the stroma are numerous. In the parenchyma the germinative epithelium is often lacking; in some cases the epithelium dips down into the substance so as to form small cysts lined with epithelium. Of the primordial follicles the number is much diminished. The Graafian follicles in process of development are also few in number. The development of the follicles is interrupted by the inflammation, and atresia ensues. There are often perifollicular hemorrhages and alteration in the form of the follicle. The cells of the membrana granulosa are the subjects of granular degeneration and contain vacuoles. The germinal vesicle has disappeared entirely in many cases. The author ends by classifying chronic o-ophoritis as follows: (1) Chronic diffuse o-ophoritis, in which the pathogenic agent enters by the vessels of the hilum, and the whole substance, stroma as well as follicles, is involved. (2) Chronic cortical oöphoritis, in which the pathogenic agent enters

[1] Archivo di Ostetricia e Ginecologia, June and July, 1904. Medical Record, Vol. lxvi, p. 591.

by the external surface of the ovary, involving the cortical portion, follicles and stroma. (3) Microcystic degeneration may be considered as a third form of chronic inflammation of the ovary

No matter how great the cystic alterations of the ovary may be, some portion is preserved to carry out its normal functions.

VULVOVAGINITIS IN LITTLE GIRLS.

Sara Welt-Kakels[2] reviews the literature of this affection from the eighteenth century when fluor albus in children was first mentioned in treatises on diseases of women and children up to the present time, and also presents a clinical study of one hundred and ninety cases observed in the children's department of the Mount Sinai Hospital Dispensary, New York, during the ten years from 1893 to 1903.

With the discovery of the gonococcus by Neisser in 1879, the previous views as to the causation of vulvovaginitis underwent a change, and of late years the gonococcus has been detected in a majority of cases reported by different observers. Of the epidemics reported the disease was transmitted for the most part by infected bathtubs, less commonly by soiled linen. In one instance, Suchard of Lavey, in Switzerland, observed an epidemic of vulvovaginitis among the bathers at a sulphur spring. Of twelve girls who had bathed in one pool, one, a six-year-old child, acquired an acute vulvovaginitis after the fourth bath. She was at once isolated and the basin thoroughly cleaned, but inside of the next six days the other eleven children had also contracted the disease, which was of a mild type. Two months later a new outbreak occurred. This was in another adjacent pool. Eleven girls, a woman of thirty and a boy three years of age bathed together. After the seventh bath three girls were taken ill and in the next three days the remaining eight girls acquired the disease; the woman and the little boy escaped. In another epidemic which occurred in the city of Posen in 1890, 236 school-girls, aged from six to fourteen years, were taken ill inside of eight to fourteen days with vulvovaginitis. They had all used the same public bath house, where, on account of limited accommodations, two or more children were required to bathe in one tub. It is interesting that though a large number of boys used the same bath house none of them contracted gonorrhea.

The association of gonorrheal ophthalmia with gonorrheal valvovaginitis is spoken of, and attention called to Epstein's statement that vulvovagnitis of the newborn is often due to the contact of the infantile genitals with the infectious secretion of the genital canal of its mother during parturition.

The author observed in her clinic 190 cases of vulvovaginitis or 1.6% of all the children treated between 1893 and 1903. Most observers give from .6% to 1% of all cases. The largest number occurred in children between the ages of two and five and the disease was rare after the tenth year.

[2] N. Y. Med. Journ., lxxx, p. 689.

Two types of the disease are differentiated, the catarrhal and the gonorrheal, the latter being the more pronounced and severe and the former the milder form. Urethritis is not necessarily present; suppuration in Bartholini's glands was never observed, and in like manner the inguinal glands, though enlarged in many cases, did not suppurate.

Gonorrheal vulvovaginitis was often contracted through sleeping with the mother or sister who suffered from an infectious genital discharge. In other cases the children infected themselves by handling contaminated bed linen, towels or utensils and conveying the virus to their genitalia on their fingers. As a rule, the infection was indirect and accidental. Catarrhal vulvovaginitis in the author's cases was caused by uncleanliness, a foreign body or traumatism; it was commonly seen in children under two years of age with summer diarrhea.

The gonorrheal form is extremely obstinate and does not readily yield to treatment. Although the inflammatory symptoms usually disappear at the end of from four to six weeks, there are apt to be exacerbations. One author reported finding gonoccocci in the discharge after the disease had lasted four years. There are grounds for the belief that deformed and undeveloped uteri found in young women are consequences of vulvovaginitis in early life, so also pyosalpinx and localized peritonitis result from the same cause. The catarrhal form generally yields readily to appropriate hygienic and simple therapeutic measures.

The complications most commonly observed are acute purulent peritonitis, gonorrheic arthritis, and purulent ophthalmia. Cystitis has been rare. The treatment which the author found of most use in the acute cases was the application of a solution of potassium permanganate, 1-2000, to the vulva, and irrigations of the introitus by means of a soft rubber catheter after the swelling of the labia had subsided. The frequency of the irrigations was timed according to the amount of the discharge; if very profuse two or there times a day. In the chronic stages solutions of silver nitrate, 1-200 to 1-800 were alternated, with the permanganate solutions. To make the treatments the child is placed in the dorsal position on a table with knees flexed and thighs spread apart. To avoid spread of the infection the vulva is protected by a sterile cotton pad held in place by a T bandage, iodoform or dermatol being used either in powder form or as a salve on the dressing. No attempts were made to abort the disease and no intra-urethral treatments used. The patient sleeps alone and all bed linen, towels and utensils are kept separate.

CAUSE OF HEMORRHAGE IN FIBROIDS.

Theilhaber and Hollinger[3] oppose the view that hemorrhage in fibroids is due to hyperplasia of the endometrium. They examined nineteen myometous uteri removed at operation and found that atrophy of the mucous membrane was more common than hypertrophy. "Myofibrosis"

[3] Archiv. für Gynäkologie, Bd. lxxi, H. 2.

of the uterine tissues renders the musculature of the vessels insufficient so that, especially during menstruation, the vessels cannot close. Other determining factors of bleeding are the strength of the muscular contractions in the tumor, the number of vessels and their situation, and the force of the blood current, dependent on psychic influences.

PAPILLOMA OF THE OVARY.

S. Pozzi[4] combats the popular impression that cysts and papillary tumors of the ovary are necessarily malignant and fatal. He points out that these tumors form but one clinical and anatomo-pathological group, and that many of the tumors are more or less large cysts which have burst open; that papilloma is often associated with ascites in considerable quantity with external vegetations, and that eventually there are disseminated growths over the parietal and visceral peritoneum.

Pozzi lays down seven propositions summing up his views: (1) Papillary tumors of the ovary (cystic or solid) must not always be considered as malignant. Not infrequently some of these tumors never undgero malignant degeneration, and do not relapse after removal, or only after a long time and then but locally without metastases.

(2) It is necessary to make a careful distinction between carcinomatous generalization (which takes place through lymphatics and blood vessels) and simble grafts which result from contact or from growth upon the peritoneum of detached papillary vegetations of the ovary. This latter process is benign, and can be compared with what happens with papilloma and warts of the skin.

One case which presented the longest survival was a woman twenty-five years old, upon whom Pozzi operated in 1878, removing papilloma of both ovaries with very abundant ascites. Recovery was complete and the patient was well until 1898, twenty years, when she developed ascites with edema of both legs. The second operation was done in 1899 the recurrent tumor being found quite fixed to the pelvic floor, and the patient in a very bad condition. Nothing but drainage was attempted, and the patient made a rapid but temporary recovery. Health was satisfactory for about a year, then she failed and died in 1901.

(3) Some of these tumors undergo a malignant process which, at the beginning, is limited, may afterwards extend all over the mass, and at last brings on a real generalization with cancer metastases.

(4) In the absence of positive symptoms of malignancy (cancerous cachexia, or visceral metastases) operators must always behave towards these tumors as if they were benign, and proceed to remove the largest extent possible of the neoplasm. The disseminated growths, or even small parts of the papillary tumor detached and lost in the peritoneal cavity, may disappear. In other cases they will be the origin of local recurrence; but these relapses can be treated successfully by later operations.

When the papillary growths are very hard and supplied with large blood vessels and evidently malignant Pozzi advises against removal.

(5) Frequency of successive invasion by both ovaries by papillary tumors constitutes indication for removal of the adnexa of both sides, even if those of one side are still healthy, at least in women who are approaching the menopause. In young women it would be preferable to venture a new laparotomy.

(6) With bilateral papillary tumors operative technic will be greatly simplified by performing subtotal or total hysterectomy, according to the case.

(7) Drainage is not necessary when cysts do not present outside vegetations and when there is no ascites. Every time ascites is present, it is right to drain the peritoneal cavity for some time, never more than four days.

ABDOMINAL HYSTERECTOMY BY HEMISECTION OF THE UTERUS.

G. dal Fabbro[5] strongly favors the method of Faure of Paris, in performing hysterectomy in cases in which the adnexa are very adherent to the surrounding structures. This method consists in grasping the fundus of the uterus by means of two strong forceps, and, having drawn the organ forward, dividing it longitudinally. The mucosa which is thus exposed is immediately cauterized with the Paquelin cautery, and there is but little hemorrhage, provided the Fallopian tubes are not injured. Each half of the uterus and the corresponding ovary and tube are then removed in turn, beginning below and working upward and outward. The scissors cut successively the cervix uteri, the broad ligament, the round ligament and the infundibulum. The adhesions are slowly severed and the arteries tied as they are encountered. The objection to this method is the possibility of infection following the opening of the uterine cavity, but this objection is not important in view of the brilliant results obtained with this procedure by Faure and others.

In the case of cancer of the uterus Faure uses a method called decollation by which he separates the uterus from its attachments first and then removes the adnexa.

CASTRATION FOR MENSTRUAL MOLIMINA FOLLOWING HYSTERECTOMY FOR CANCER.

Bluhm[6] reports the case of a virgin, forty years of age, whose menstruation had originally been painless. Having developed cancer of the uterus the uterus was removed, the ovaries and tubes being spared. Dysmenorrhea was marked during the growth of the cancer and periodic pains returned with severity at a time nearly a year and three quarters after the hysterectomy, necessitating o-ophorectomy. Microscopic exami-

[4] Amer. Jour. Obstets., Vol. l, p. 433.

[5] Gazetta degli' Ospedale, Sept. 11, 1904. N. Y. Med. Jour., Vol. lxxx, p. 850.

[6] Zentralblatt für Gynäkologie, No. 28, p. 884.

nation of the ovaries removed showed them to be normal to all intents and purposes. The writer is opposed to the practice of leaving the ovaries in malignant cases, not only on account of the risk of metastasis, but because of the probability that the ovaries will continue their function and may give rise to distressing pains.

RESECTION OF THE UTERO-OVARIAN SYMPATHETIC.

G. Fuschini[7] states that the operation of removing the utero-ovarian sympathetic plexus was devised by Giuseppe Ruggi in 1889, who performed the operation in the case of women who continued to complain of disturbances in their generative organs in spite of the fact that they had been subjected to various operations for the relief of these conditions.

Fuschini has used this method in three similar cases with very good results, and in addition he has operated upon a number of other patients in the same manner, either with or without removing the adnexa, sparing them whenever possible.

The remote results could not be judged because of the short time which had elapsed since the operations. The operation is recommended in place of the numerous ovariectomies so much in vogue with some surgeons.

RADIOTHERAPY OF UTERINE TUMORS.

J. Deutsch[8] describes a number of cases of uterine tumors which retrogressed under Röntgen treatment. They were diagnosed as myomata, and one patient, whose case is reported in detail, measured 120 cm. around the waist, but under treatment was reduced to 95 cm. After five exposures the previous bladder troubles were relieved and vanished entirely after seven more. The course of treatment lasted two years, with ninety exposures. A large co-existent struma has entirely vanished. In one of the cases the myoma rapidly retrogressed during the course of thirty exposures, but another tumor, probably an ovarian cyst, showed comparatively little change. Two of the patients had blood-stained serous discharges from the vagina every time after the exposures. The myoma had caused hemorrhages in one instance, but these were much reduced under treatment. Two of the patients exhibited symptoms similar to those noticed during thyroid treatment of goiter, but they ceased when treatment was suspended. Patience and perseverance are needed to accomplish any results with radiotherapy of deep-lying tumors.

THE QUESTION OF TUBAL MENSTRUATION.

Thorn discusses this interesting question[9] and concludes that swelling of the tubal mucosa undoubtedly occurs during menstruation simultaneously with the swelling of the uterine mucosa, but that a loss of blood from healthy tubes at such a time has not as yet been observed. Observations to determine this point have been made upon tubes which were removed by abdominal section during the menstrual period, upon the tubes of an inverted uterus, upon the healthy tubes of women who died while menstruation was in progress, and upon those which were removed in connection with the removal of myomatous and carcinomatous uteri. In none of these cases could the menstrual flow from the tubes be determined.

In pathological conditions of the tubes, however, with fistulæ communicating with the abdominal wall or the vagina, hemorrhages may occur which are quite similar to those which proceed from the uterus during menstruation. Thorn adds two new cases to those already reported, one, a case of fistula leading from the tube to the abdominal wall following the enucleation of a myoma, the other a case of tubo-vaginal fistula following hysterectomy, the adnexa upon the right side having been retained. In both cases periodical hemorrhages of the menstrual type proceeded from the openings of the fistulæ. The hemorrhages in the second case were regarded as an illustration of the so-called vicarious menstration. Conclusions as to normal tubal menstruation could not properly be drawn from these cases.

A NEW OPERATION FOR CYSTOCELE.

J. Riddle Goffe,[10] who has had an extended experience in operating on the uterus and its adnexa by the vaginal route has devised an operation for cystocele which consists in making a cross incision in the anterior vaginal wall just in front of the cervix. From the middle of this line an incision is made at right angles to it down the entire length of the anterior wall of the vagina. The incisions go through the fascia down to the bladder wall. The bladder is then dissected widely and freely from the interior of the fascia on either side of the median line till the entire organ is set quite free throughout its entire base and sides. The vesico-uterine pouch is then entered and the peritoneum torn across the face of the uterus and well out on the face of the broad ligaments. The bladder is stitched by an interrupted suture of chromic gut at three points, *viz.*, to the middle of the anterior face of the uterus, and to each broad ligament, the points on the broad ligaments selected being sufficiently wide apart to spread out the bladder wall. The sutures are left long until all three are in place, then the middle one is tied first.

The operation is completed by trimming away all the overstretched vaginal sheath and membrane at either side of the longitudinal vaginal incision and bringing together the bare, strong fascial edges with interrupted catgut sutures. Malposition of the uterus must be corrected before the cystocele operation is undertaken. Permanent support of the bladder and of the anterior vaginal wall is claimed for the procedure, which Goffe has employed eight times.

[7] Gazetta degli' Ospedale, Sept. 18, 1904. N. Y. Med. Jour., Vol. lxxx, p. 899.
[8] Münchener Medicinsche Wochenschrift, No. 37. Jour. Amer. Med. Asso., Vol. xliii, p. 1428.
[9] Fortschritte der Medizin, Sept. 10, 1904. N. Y. Med. Jour., Vol. lxxx, p. 910.
[10] Jour. Amer. Med. Asso., Vol. xliii, p. 1432.

(*To be continued.*)

Reports of Societies.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

(Continued from No. 7, p. 198.)

CYSTS OF THE PANCREAS.

Dr. D. W. Basham of Wichita, Kan., followed with a paper on this subject. He referred briefly to the physiological anatomy of the gland, in order to elucidate the principles underlying the formation of a cyst of this organ. He recounted the symptomatology, and pointed out the difficulty attending the diagnosis. As to treatment, Gussenbauer was the first to marsupialize the sac, and since then this has been a favorite procedure with most surgeons. The only question regarding this method, is whether to attach the sac to the abdomen and incise at once, or to operate *à deux temps*. If there is plenty of time and the cyst is not so large that a day or two may make any difference in the result, he thinks it is better to operate in two stages, stitching the sac to the peritoneum and muscles, and opening two or three days later. Excision of the sac is not often practical, but may sometimes be attempted. Often such a course will expose the patient to the risk of contaminating the peritoneal cavity with pancreatic secretions.

He reported the case of a tumor of the pancreas in a woman, sixty-two years of age. The tumor was removed. The patient left the hospital at the end of seven weeks, and he has not seen her since. The woman's dyspeptic manifestations were better after the operation than before, but were not entirely relieved. About the first of December, the patient began to have serious trouble with her stomach, and called a physician, who was able to outline a tumor in the region of the pylorus, which he diagnosed as cancer of the stomach.

Dr. William D. Haggard thinks inflammations of the pancreas will occupy the most prominent position in the future development of surgery. Disease of this organ is closely allied to surgery for lesions in the upper abdomen. When one stops to think how our knowledge has been amplified in the last two years relative to this sequestered organ, and when one considers that many cases of so called gastritis, intestinal obstruction, etc., are, after all, probably instances of pancreatitis, it makes surgeons realize that the lesson has been appreciated, but we have not yet mastered the diagnosis of this as well as other lesions; nevertheless more attention should be addressed to lesions of the pancreas than has been done in the past. He referred to the three types of infection, and called attention to the excellent work done by Opie, Robson and others.

Dr. Brockman in closing, expressed the opinion that pancreatic cysts are not so uncommon as has been supposed. He has had four such cases in the last twelve or fourteen years.

EXCISION OF THE ELBOW JOINT FOR TRAUMATIC AND ARTHRITIC ANKYLOSIS.

Dr. B. Merrill Ricketts of Cincinnati, Ohio, read a paper on this subject in which he drew the following conclusions: "(1) Excision of the elbow joint for ankylosis, due to any cause, at any age, is a most rational procedure. (2) If possible, it should be done before or at the time ankylosis is complete. (3) A posterior median incision is the most practical. (4) With care the operation can be done without injury to blood vessels or nerves. (5) Drainage should always be provided for. (6) The arm should be placed upon a right angle splint. (7) Results are better when only the articulating surfaces are removed. (8) If there is complete bony union of the articulating surfaces, much more bony tissue must be sacrificed, because disarticulation cannot be accomplished. (9) All soft structures cut transversely will unite, but new insertions are formed which destroy their function. (10) All attachments of tendons and muscles should be preserved. (11) All periosteum should be preserved. (12) If excision of the joint is complete, leaving only the ends of the shafts, flail joint can be prevented by approximating their ends with kangaroo tendon at the time of primary operation. (13) Wire or nail may be used, but their removal sooner or later will be imperative. (14) Flail joint rarely results from any form of excision, but is more likely to be found following excision of the entire joint. (15) If flail joint results, a mechanical device may be employed. (16) Injections of alcohol or one or more of the various astringents will increase fibrous tissue both in quantity and density."

THE OPERATIVE TREATMENT OF FRACTURES AND SPRAINS.

Dr. A. E. Benjamin of Minneapolis, Minn., stated that frequently fractures were not recognized, and that complicated joint fractures without operative treatment gave poor results. All fractures should be examined with the x-ray to diagnose positively and locate the injury. The ordinary form of treatment of even simple fractures often results in a deformed and crippled limb. The term ununited fracture is a myth; the condition is invariably due to some preventable cause. The habit of using the x-ray in all fractures leads to more operative measures, although without its use diagnosis is frequently impossible and treatment uncertain. There is frequently as great a subcutaneous injury from a fracture as in a compound fracture, and it is just as essential that an operation should be performed in such cases in order to prevent a lasting injury to the nerve and muscle tissue. By an operation upon these fractures drainage is established, pain and fever lessened, exostosis and the organization of the exudate are less permanent, and necessarily there follows less permanent injury to the soft structures. Associated with fractures there is frequently a sprain or a tearing away of ligaments, cartilages, and dislocation. The progress of a joint that has been sprained is often slow and discouraging, resulting in a weak and insecure union of ligaments. It is advisable to operate upon a number of sprains, especially where there is a great deal of exudate and pain. By the operative method drainage is established, pain relieved, the ligaments can be stitched in their natural place of habitation, the convalescent period is shortened, and a greater proportion of cures results.

THE SURGICAL CONSIDERATIONS OF GASTRIC DILATATION.

Dr. A. M. Pond of Webster City, Iowa, after considering the etiology, stated that in his last three cases of gastric dilatation due to impairment of the stomach wall, he has modified the standard operation. Sufficient time, however, has not elapsed to warrant a description of the operation. The last case was operated June 4. In each instance a very satisfactory result was obtained. The success of the operation depends upon the patency of the pyloric orifice and the ability of the gastric muscle to regain its normal tone. The author believes that gastric dilatation is usually a sequence rather than a primary cause of discomfort, and that it owes its presence to some disturbance of the elemental dynamics of digestion.

TREATMENT OF ACUTE PERFORATIONS OF THE UPPER ABDOMINAL VISCERA.

DR. VAN BUREN KNOTT of Sioux City, Iowa, pointed out the importance of the early recognition of such an accident, saying that an accurate diagnosis as to which organ is involved is neither possible nor necessary at all times. The symptoms of gastric or duodenal perforation will usually be more intense than those of perforation of the gall bladder. The previous history of the case is of importance in making a differential diagnosis. The treatment is successful in direct ratio to the promptness with which it is instituted. The resulting peritonitis is the most important outcome of the accident, and its treatment in the various cases is similar. He emphasizes the value of posture in treatment.

PNEUMATOCELE.

DR. L. L. MCARTHUR of Chicago reported a rare case of pneumatocele, saying that it is a gas-containing tumor of the cranium, very rare, in that there have been only 32 cases recorded since 1741. It always originates in connection with either the mastoid or frontal sinuses. It is not to be confounded with emphysema, which is gas in the cellular tissue. Pneumatocele is gas in the pericranium. Incident to the elevation of the periosteum are secondary bony outgrowths, giving the tumor a peculiar feel. In the pre-antiseptic era the simple benign pneumatocele became a dangerous affair, because of the frequent connection with the mastoid sinuses, with the potential septic meningitis. Since antiseptic surgery has become well-established, all of these cases recover.

THE VALUE OF SKIAGRAPHY IN THE TREATMENT OF FRACTURES.

DR. H. A. SIFTON of Milwaukee, Wis., exhibited numerous skiagraphs in connection with a paper on this subject. He is of the opinion that, when it is possible, the Roentgen ray should be used in the treatment of every fracture. It has its deceptions, but these mean nothing to the physician who has made a study of the subject, and who is familiar with the conditions under which the skiagraph was taken. Some urge its use in the obscure or complicated cases only, but the difficulty with this plan is that we can never tell whether or not a fracture is complicated until a radiograph of it is taken.

It is the surgeon's duty to do his best for the patient, and to do this he should look upon every case of fracture as complicated until it has been shown to be otherwise by a good radiograph. A good radiograph is of value for future information from a forensic standpoint, but no radiograph, in his opinion, should be admitted as evidence in any medico-legal dispute, unless both parties to the dispute know the conditions under which the radiograph was taken.

This paper was discussed by Drs. L. L. McArthur, J. W. Andrews, C. E. Ruth, A. I. Bouffleur, M. L. Harris, A. E. Benjamin, all of whom concurred in the opinion that the x-ray was an important confirmatory aid to the surgeon, but that radiographs should not be admitted as evidence in a court of law.

THE MANUFACTURE AND USE OF TIN SPLINTS.

DR. ARTHUR T. MANN of Minneapolis made a plea for the general utility of tin splints. He pointed out the simple equipment necessary to make them; also the ease of making the splints and patterns for them. He described several tin appliances which are useful for the surgeon, and among them a device for regaining flexion and extension of the elbow joint after fractures and dislocations. He also exhibited a device for the protection of the line of sutures in operative cases of cleft palate.

SYNCYTIOMA MALIGNUM.

DR. H. C. CROWELL of Kansas City, Mo., reported a case of this comparatively rare disease, which was accompanied by a detailed pathological report of the specimen. He referred briefly to other cases which he had found in the literature.

DR. ARCHIBALD MACLAREN reported a case of what he had supposed to be a soft edematous fibroid from the history, but after operation the case proved to be one of syncytioma malignum.

FRACTURES OF THE TARSAL BONES.

DR. DANIEL N. EISENDRATH of Chicago called attention to the surgical anatomy of these bones and to the mechanism of fractures. After discussing the symptoms and diagnosis, he reported six instructive cases on which he had operated, and presented the following conclusions: "(1) The astragalus and os calcis bear the entire weight of the body. (2) They are most frequently broken in falls from a height directly upon the feet (compression variety), or by tearing off of a portion of one of the bones, either when the heel is fixed or sudden supination or pronation, or in forcible dorsal flexion of the foot. (3) Early diagnosis, on account of the danger of sepsis from secondary skin necrosis, is of great importance. (4) If there is no displacement of fragments, treat the case by a cast for six weeks, with early massage. If displacement should threaten necrosis of skin, convert into an open fracture, and either remove the fragment or suture it."

(To be continued.)

Recent Literature.

Light Energy. Its Physics, Physiological Action and Therapeutic Applications. By MARGARET A. CLEAVES, M.D. pp. 811. New York: Rebman Company. 1904.

This is an excellent exposition of the physical properties of light, its action on the lower and higher forms of life.

Separate chapters are devoted to the physics and therapeutic use of sun-baths, electric arc baths, incandescent light baths, both in their natural strength and concentrated. The author discusses the use of blue, red and ultra-violet light energy, and considers the N-rays, radium, fluorescence, sensitization, the action of light on supersensitive skins, insulation and the pathological effect of electric lighting.

The results of treatment in cases under the author's care and from the literature are given. The number of cases is in many instances too small to admit of fair judgment,—a fact which the author continually keeps in mind. In general, the results are such as to warrant a more extensive use of light as a therapeutic measure.

The literature is carefully and critically reviewed. The book should, as the author hopes, stimulate further inquiry and more carefully recorded data.

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STATE MEDICAL LICENSES.

THE effort to establish and maintain the increasingly high standard for medical practitioners is illustrated by the recent annual report of the State Board of Medical Examiners of New Jersey. This board, like many others in various states, is attempting, with the highest possible measure of justice to all concerned, to regulate the legitimate practice of medicine by demanding a certain somewhat definite preliminary training. In order to procure a medical license in the state of New Jersey the previous training of the individual is taken into account, together with his medical knowledge and his moral character. It is designed that every opportunity be given applicants to obtain the educational credentials necessary for admission to examination. To this end students who have not been able to take a high school course are allowed the privilege of presenting an equivalent degree of education to be determined by the state superintendent of public instruction. In New York State all of the medical schools require at least a high school course or its equivalent for matriculation as a minimum. Such a standard does not appear unduly high, nevertheless it has been shown that a number of medical schools do not maintain the requirements as stated in their catalogues. A mercenary motive no doubt enters into consideration since the success of certain schools depends upon the number of students. New Jersey has done good work in adopting and enforcing uniform entrance requirements, and as the result a better educated class of physicians is practicing in the state than ever before. The medical requirements demand four full years of study of nine months each. Certain concessions are, however, made to physicians applying for license, who have previously been in practice. Five years of practice may be accepted as an equivalent for one course of lectures, and ten years for two courses of lectures. By this means older physicians are not discouraged from changing their place of practice to New Jersey, if they so desire. A step in progress is shown by the fact that two medical schools in one of the large cities have been told that their graduates after 1904 cannot be admitted to the state examinations.

It is not our purpose to enter into the details of this significant report. We commend it to those interested in the general elevation of the standard of medical practice throughout the country, and in the future possibility of a greater degree of co-operation between the various states in the way of the wider interstate exchange of license. The principle involved in this effort which the profession in New Jersey is making is one which naturally has a very wide bearing. There is no lack of evidence that the standard of accepted medical practice is far higher in certain parts of the country than it was ten years ago. What we now particularly need is a greater uniformity, and this in a country, situated as the United States is, is a matter of peculiar difficulty and one which probably can never be so satisfactorily settled as in more closely populated countries. In the meantime, however, if each state takes the matter up seriously, as many have already done, it will do much toward hastening the uniformity of medical education which is so manifestly demanded for the best good of the profession.

VISIT OF BRITISH PHYSICIANS TO PARIS.

IT will be remembered that some months ago a number of distinguished French physicians visited London for the purpose of interchange of ideas and social intercourse. It is now suggested that this courtesy be returned by the invitation to Paris of certain British physicians and surgeons for the purpose of visiting the hospitals and discussing in detail matters relating to medical education. In order to accomplish this purpose a committee has been formed in Paris under the presidency of Professor Bouchard, and an invitation was sent last December to the London committee of which Sir William Broadbent is chairman. The difficulty appeared to be a question of dates merely, but now the invitation has been definitely accepted, and, in fact, a decision has apparently been reached that the meeting be held toward the middle of May. The list of physicians will later be forwarded to Paris.

At the time of the French visit to England we commented upon the great desirability and significance of such an interchange of views by men representing medicine in different countries. We saw no good reason why this idea, inaugurated by the French and English, should not further be extended and provision made for the visit in numbers of physicians to various countries not their own. It would naturally be a matter of some difficulty, not to speak of the expense, to arrange for such an interchange of distinguished men between America and the Continent of Europe. Nevertheless, with our constantly improved methods of transit, it could be so planned that not many days of a man's working time would be required for the accomplishment of the purpose designed. The interchange of professors between America and certain Continental countries appears to be well started, and we cannot doubt that the same plan, somewhat more extensively applied, might easily be carried out with reference to groups of men interested in a common subject. That such an intimate interchange of ideas would be beneficial to the visitors as well as to the visited there cannot be the slightest question. Not many years ago the visit even of an individual man of prominence to America from Europe was heralded widely. This has now come to be a common occurrence, and the recent experience at St. Louis, where were collected for a short time only, distinguished men from all parts of the world, may be regarded as a prophesy of what may be expected in the years to come. In any event we are convinced that nothing will conduce more to the progress of medicine through the increasing sympathy of its leaders than just such a personal interchange of ideas as the suggested plan would of necessity bring about.

COMPULSORY VACCINATION UPHELD.

WITH two justices dissenting, the Supreme Court of the United States rendered a decision Feb. 20 relative to compulsory vaccination in this state. From this decision it results that the State of Massachusetts has a right to enforce any order to compel inhabitants to submit to vaccination for the purpose of preventing the spread of smallpox. The case has been long pending, the plaintiff being Henning Jacobsen of Cambridge. In the winter of 1902, during the prevalence of smallpox, the Board of Health of that city ordered vaccination under the provisions of the law. Jacobsen declined to be vaccinated on the ground that his personal liberty was involved. The case was brought to trial in the Massachusetts courts, which decided against the claims of Jacobsen. An appeal to the United States Supreme Court followed, and the decision to which we have alluded is the result. We quote certain of the statements made by Justice Harlan in rendering the decision.

"We assume for the purpose of the present inquiry that adults not under guardianship and remaining within the limits of the city of Cambridge must submit to the regulation of the board of health. On any other basis, organized society could not exist with safety to its members. Society based on the rule that each one is a law unto himself would soon be confronted with anarchy and disorder. Real liberty for all could not exist under the operation of a principle which recognizes the right of each individual person to use his own will in respect to his person or his property, regardless of the injury that may be done to others. It is the acknowledged power of a local community to protect itself against an epidemic threatening the safety of all and to exercise that right in particular circumstances and in reference to particular persons.

"It was the duty of the authorities to keep in view the welfare, comfort and safety of the many and not permit the interests of the many to be subordinated to the wishes or conveniences of a few. Accepting the state court's construction of the statute, we decide only that the statute covers the present case, and that nothing clearly appears that would justify this court in holding it to be unconstitutional and inoperative in its application to the plaintiff in error."

Such a decision as the foregoing is naturally a source of gratification to the medical profession and to that portion of the laity which is able to see the bearnig of the problems of health in their broad aspects. The decision can hardly fail to be influential in the determination of similar cases which will inevitably arise in other states.

A BILL TO PROVIDE FOR THE PREVENTION OF BLINDNESS.

IN an editorial in the last issue of the JOURNAL on "Bills before the Massachusetts Legislature," the above bill (Senate No. 186) to provide for the prevention of blindness was commented on "as well intentioned, but futile in its present form." We have been asked by some of those interested in the bill, and who express a desire to make it acceptable to the medical profession as far as this is possible, to refer to it again and gladly do so, for we are heartily in sympathy with the purpose of the bill, though we cannot advocate its form.

We believe the bill is modelled on one in operation in New York, and that in turn was probably taken from enactments on the other side of the Atlantic — perhaps in England or in Germany. The provisions of the bill follow:

Section 1. Should one or both eyes of an infant become inflamed, or swollen, or reddened, or show any unnatural discharge at any time within two weeks after its birth, it shall be the duty of the physician, midwife, nurse, relative or attendant having charge of such infant to report in writing, within six hours, to the health officer or board of health of the city or town in which the parents of the infant reside, the fact that such inflammation, or swelling or redness of the eye or unnatural discharge exists. On receipt of such report the health officer or board of health shall take such immediate action as to him or them may seem necessary in order that blindness may be prevented.

Section 2. Any failure to comply with the provisions of this act shall be punished by a fine not to exceed two hundred dollars.

The object of the bill is to provide for and to secure the early treatment of those cases of ophthalmia neonatorum which now, being neglected, result so often in permanent blindness and consequent dependence on friends or on the state. This object is certainly a most laudable and important one. It seems to us, however, that the promoters of the bill in their desire to cover the whole field, have given it a too sweeping application controlled by an excessive penalty, and possibly attended by excessive burdens upon health officers and boards of health. And from this point of view we believe it would be possible to improve the wording of the bill.

Compulsory reporting and inspection are so desirable and necessary under some conditions, that they should be used with caution and circumspection, and their abuse avoided.

MEDICAL NOTES.

Death of Professor Ernst Abbe. — The death of Prof. Ernst Abbe of Jena is announced. He will long be known for his work on the microscope and optical instruments in connection with the firm of Karl Zeiss. He was sixty-four at the time of his death.

Elections to the American Psysiological Society. — The American Physiological Society has recently elected as honorary members the following foreign physiologists: Th. W. Engelmann, professor in the University of Berlin; A. Dastre, of the Sorbonne, Paris; J. N. Langley, Cambridge University; C. S. Sherrington, University of Liverpool; Fr. Hofmeister, professor of physiological chemistry at the University of Strassburg, and J. P. Pawlow, director of the physiological laboratory, St. Petersburg.

Russian Honors to an Englishman. — The *Medical Press* is authority for the statement that Dr. Keene, Surgeon to the British steamer *Ajax*, of Liverpool, has been presented by the Czar with a gold cigarette case in recognition of his services to the Russian officers and men who were wounded at the naval battle off Chemulpo, in February of last year, when the *Variag* was sunk. Dr. Keene is a graduate of Dublin University.

The Medical Library and Historical Journal. — This Journal, with editorial office at 1313 Bedford Avenue, Brooklyn, N. Y., owing to the almost total destruction by fire of the establishment of its printers on Feb. 13, begs to ask the kind indulgence of its subscribers and advertisers for delayed publication of the January, 1905, number. Fortunately, duplicate copies of all important manuscripts were made before sending them to the printer, so the heavy loss incurred by the *Journal* will not be shared by its contributors or readers. The editor desires to announce that immediate steps have been taken for the making of new plates and duplicating the entire number which was in press, and that this issue will be published at the earliest possible date.

The Röntgen Congress in Berlin. — The Berlin Röntgen Society (*Röntgen Vereinigung zu Berlin E. V.*) has arranged for a congress in commemoration of the first decennial of Röntgen's discovery, to be held under the auspices of Excellenz von Bergmann, Ehrenpresident, and of an honorary committee headed by the Prussian Minister of Instruction and His Majesty's Physician, the Surgeon-General of the Prussian army and including the President of the III Congress *d'electrologie et de radiologie* for those in Germany and also in other lands interested in the investigation, technique and employment of the Röntgen ray.

The Congress as well as an Exhibition of Apparatus, Radiograms, etc., will be held in the rooms of the Ressource, in the Latin quarter of Berlin (No. 24, Oranienburgerstrasse 18) for the four days succeeding Easter week, April 30 to May 3, 1905.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Feb. 22, 1905, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: Diphtheria 26, scarlatina 21, typhoid fever 16, measles 3, tuberculosis 48, smallpox 1.

The death-rate for the total deaths reported during the week ending Feb. 15, 1905, was 19.53.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, Feb. 18, 1905, was 223, against 224 the corresponding week of last year, showing a decrease of 1 death and making the death-rate for the week 18.93. Of this number 126 were males and 97 were females; 218 were white and 5 colored; 139 were born in the United States, 80 in foreign countries, and 4 unknown; 54 were of American parentage, 140 of foreign parentage, and 29 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 38 cases and 3 deaths; scarlatina, 31 cases and no deaths; typhoid fever, 14 cases and 2 deaths; measles, 5 cases and 1 death; tuberculosis, 42 cases and 31 deaths; smallpox, 1 case and no deaths. The deaths from pneumonia were 46, whooping cough 1, heart disease 26, bronchitis 7, and marasmus 5. There were 5 deaths from violent causes. The number of children who died under one year was 36; the number under five years 45. The number of persons who died over sixty years of age was 66. The deaths in public institutions were 58.

PRESIDENT OF YALE ALUMNI ASSOCIATION. — Dr. Abner Post of Boston has been elected President of the Massachusetts Yale Alumni Association.

BACTERIOLOGIST TO CAMBRIDGE BOARD OF HEALTH. — A rather unusual situation was persented last week when the present incumbent of the position of bacteriologist to the Cambridge Board of Health declined to take an examination for continuance in office on the ground that already holding the position he should not be required to take a competitive examination. But one candidate appeared for the examination.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — In view of the fact that the terms of the proposition made by the Society to the Boston Medical Library whereby the Society had volunteered to disband had not been accepted by the Medical Library, it was voted at the recent annual meeting of the society to continue the life of the society.

This society was incorporated by Act of Legislature in 1839. It is one of the best recognized medical societies in the country. It appeared to the officers and members that certain meetings could be best conducted under its auspices. The plans of the Medical Library and Suffolk District Medical Society to conduct joint meetings make it undesirable to hold many meetings, but such subjects as would seem of interest to members of the society will be presented from time to time.

THE BLIND IN MAINE. — At a recent hearing before the committee on finance at Augusta, Me., a resolution was offered appropriating $75,000 for the next two years for the benefit of the Maine Industrial School and Workshop for the Blind. It was voted to refer this resolution to the next legislature. A letter was read from Helen Keller urging the necessity of practical work for the adult blind.

DEATH OF AN ARMY NURSE. — Mrs. Ruth Spooner Joslin died in Bridgewater, Conn., Feb. 8. She will be widely remembered as one of the early Civil War nurses who enlisted in January, 1863, in the Chester Seminary Hospital at Chester, Penn. She later served at the Naval School Hospital at Annapolis. In such capacities she served with distinction as a nurse during the Civil War and since its close has been prominent in matters relating to nursing in the army. It is said that there are but ten nurses now left of those who took part in the Civil War.

NEW YORK.

PLAY-GROUNDS AND SMALL PARKS. — At a meeting of the Board of Estimate and Apportionment held Feb. 17, $1,000,000 was appropriated for new play-grounds and nearly $3,500,000 for small parks in the boroughs of Manhattan, Bronx, Brooklyn and Queens.

RESTRICTION OF IMMIGRATION. — On Feb. 8, Thomas S. Sherman of Boston, recently United States Consul at Liverpool, made an address on the restriction of immigration before the Merchants and Manufacturers' Board of Trade, in which he presented statistics showing that the state of New York is now paying about $10,000,000 a year for the support of its alien insane, and that 60% of the inmates of insane asylums and two thirds of the patients treated in the other hospitals of the state are of foreign birth. He also referred to the very marked increase of cases of trachoma within the past five years. As to the means of remedying such conditions, he expressed the opinion that nothing short of thorough inspection by competent officers of the United States at the homes of emigrants would

solve the problem. These officials, he said, should be attachés of consulates, and the inspection should cover all requirements of our laws. To those on whom the inspectors report favorably the consul's permit would be issued, upon payment of a fixed fee, insuring admission here, subject to medical inspection.

Miscellany.

THE HISTORY AND DEVELOPMENT OF SURGERY DURING THE PAST CENTURY.

At the conclusion of a lengthy article, which was presented at the St. Louis Congress and has been running through several issues of *American Medicine*, Dr. Frederic S. Dennis sums up the progress made by surgery during the last century. Among the blessings which he asserts it has brought to the human race are these: The annihilation of pain during surgical operations, elimination of sepsis after operations and injuries, eradication of physical suffering, restoration of sight to the blind, recovery of hearing to the deaf, return of lost functions to organs and glands, aseptic repair of injured parts, relief of the crippled and lame, restitution of speech and consciousness, return of activity to paralyzed members, removal of malignant disease, restoration of reason to the insane, correction of bodily deformities, alleviation of pain in disease, reaction from shock and collapse, cure of lockjaw and other infective processes, intervention of relief in intestinal perforation, extirpation of tumors from glands and cavities, cure of diseases and injuries of internal organs, resection of diseased viscera, excision of joints and necrosed bone, amputation of diseased members, cure of aneurysm, removal of cerebral and spinal neoplasms, reduction of mortality in all surgical diseases, entire removal of mortality in some surgical diseases, restoration of health and reason, salvation of human life.

THE HALL OF FAME AGAIN.

The editor of the *Western Medical Review*, Dr. H. Winnett Orr, of Lincoln, Neb., reverts to this subject in the last issue of that journal and says: "Further investigation of the matter reveals the fact that the names of Benjamin Rush, Valentine Mott and J. Marion Sims are already in formal nomination by reason of each having received a certain number of votes at the election in 1900. The editor of the *Review* therefore proposes that five more be named, placing eight in nomination in all. As one to take the place of Benjamin Rush in our former list we propose William T. G. Morton to whom is generally accorded the discovery of the applicability of ether anesthesia to the practice of surgery. The editor of the *Review* is having printed a set of what might be called nomination blanks. These will be sent out for signatures to physicians throughout the country. They consist of short biographical sketches printed on postal cards, each card, being a miniature petition with space for five signatures. These will be forwarded, after being signed, in large numbers, for the consideration of the board of electors, and it is hoped will result in the election of not less than three or four physicians. To defray the expense of the undertaking it is requested that physicians write for a set (eight) of these cards, enclosing twelve cents in postage to defray the expense of the cards and their printing and correspondence. Each physician is requested to sign the cards of those physicians whom he most desires to see elected. In this way we may succeed in convincing the board of electors of our desire to honor the great physicians of our country —which in 1900 we failed to do."

ARMY MEDICAL CORPS EXAMINATIONS.

Preliminary examinations for appointment of Assistant Surgeons in the Army will be held on May 1 and Aug. 1, 1905, at points to be hereafter designated.

Permission to appear for examination can be obtained upon application to the Surgeon General, United States Army, Washington, D. C., from whom full information concerning the examination can be procured. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice.

In order to perfect all necessary arrangements for the examinations of May 1, applications must be complete and in possession of the Surgeon General on or before April 1, and for the examination of August 1, on or before July 1. Early attention is therefore enjoined upon all intended applicants.

There are at present twenty vacancies in the Medical Corps of the Army.

Correspondence.

MOVEMENTS OF STOMACH AFTER GASTRO-ENTEROSTOMY: A CORRECTION.

Boston, Feb. 13, 1905.

Mr. Editor: In my paper on "A New Method of Performing Gastro-Enterostomy," published in the Boston Medical and Surgical Journal, Vol. CLII, No. 3, Jan. 19, 1905, I omitted to give credit to Drs. Cannon and Blake for their experimental work upon the movements of the stomach after gastro-enterostomy, one conclusion of which was published in my paper as a reason for the adoption of the technic of my operation.

The experimental work and the conclusions of Drs. Cannon and Blake are to be published shortly and I regret the premature publication of their results in my paper.

Very truly yours,

Alfred H. Gould.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 11, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,546	441	22.10	19.00	2.71	.26	1.87
Chicago . . .	1,990,780	554	205	25.81	21.30	1.98	.72	—
Philadelphia	1,407,988	612	146	20.91	25.00	2.28	1.30	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	543,229	221	64	19.00	10.86	1.81	1.35	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	406,645	—	—	—	—	—	—	—
Pittsburg . .	362,463	—	—	—	—	—	—	—
Cincinnati . .	338,377	—	—	—	—	—	—	—
Milwaukee .	325,900	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	71	16	12.68	28.18	2.81	—	1.40
Boston . . .	617,350	233	50	15.88	24.03	2.14	.42	—
Worcester . .	136,925	45	10	11.11	33.33	—	—	8.88
Fall River .	119,349	45	20	22.22	33.33	—	—	—
Lowell . . .	104,402	42	11	14.28	14.28	2.38	—	—
Cambridge .	100,988	29	6	17.24	20.69	—	3.45	—
Lynn	73,875	24	4	4.16	29.16	—	—	—
Lawrence . .	73,348	33	7	15.15	30.30	—	—	6.06
Springfield .	72,090	21	5	19.05	23.81	4.76	—	—
Somerville .	70,413	17	2	11.76	41.17	—	—	—
New Bedford	68,883	38	10	5.26	21.05	—	—	—
Holyoke . . .	50,538	15	4	13.33	33.33	—	—	6.67
Brockton . .	46,601	13	6	7.70	—	—	—	—
Newton . . .	39,310	8	1	—	37.50	—	—	—
Haverhill . .	39,061	13	3	10.00	20.00	—	—	—
Malden . . .	37,305	8	2	—	25.00	—	—	—
Salem	37,188	10	6	20.00	—	—	—	—
Chelsea . .	36,499	19	2	—	15.79	—	—	—
Fitchburg . .	36,335	10	3	10.00	20.00	—	—	—
Taunton . . .	34,577	12	3	33.33	—	—	—	—
Everett . . .	30,309	7	1	71.50	—	—	—	14.30
North Adams	20,201	4	0	—	25.00	—	—	—
Quincy . . .	26,798	9	2	33.33	11.11	11.11	—	11.11
Gloucester .	26,121	7	1	—	—	—	—	—
Waltham . .	25,797	11	—	9.09	18.18	—	—	—
Brookline . .	25,576	8	1	—	—	—	—	—
Pittsfield . .	22,870	16	2	25.00	12.50	—	—	—
Medford . .	21,956	7	3	—	57.20	—	—	—
Chicopee . .	21,692	2	1	100.00	—	50.00	—	—
Northampton	20,314	7	1	14.30	14.30	—	—	—
Beverly . . .	15,807	6	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	2	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	5	3	20.00	40.00	—	—	—
Hyde Park .	14,500	4	0	—	—	—	—	—
Newburyport	14,478	8	2	—	25.00	—	—	—
Woburn . . .	14,315	10	3	40.00	—	10.00	—	—
Melrose . . .	13,819	2	0	50.00	—	—	—	—
Westfield . .	13,800	9	1	22.22	33.33	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	7	2	14.30	—	—	—	14.30
Revere . . .	13,609	1	1	—	100.00	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . . .	12,468	—	—	—	—	—	—	—
Gardner . .	12,324	2	1	50.00	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	6	1	50.00	—	—	—	—
Weymouth .	11,350	7	2	—	14.30	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,787; under five years of age, 1,057; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 781; acute lung disease 785, consumption 425, scarlet fever 24, whooping cough 22, cerebrospinal meningitis 40, smallpox 3, erysipelas 13, puerperal fever 15, measles 12, typhoid fever 21, diarrheal diseases 91, diphtheria and croup 83.

From whooping cough, New York 9, Chicago 10, Philadelphia 2, Fall River 1. From scarlet fever, New York 14, Chicago 3, Philadelphia 1, Baltimore 2, Boston 2, Lawrence 1, Pittsfield 1. From cerebrospinal meningitis, New York 29, Providence 1, Worcester 4, Lawrence 2, Holyoke, Everett, Quincy and Marlborough 1 each. From smallpox, New York 1, Chicago 2. From erysipelas, New York 6, Chicago 2, Philadelphia 3, Baltimore 1, Northampton 1. From typhoid fever, New York 4, Chicago 4, Philadelphia 8, Baltimore 3, Boston 1, Cambridge 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending Jan. 28, 1905, the death-rate was 18.4. Deaths reported 5,520; acute diseases of the respiratory organs (London) 283, whooping cough 107, diphtheria 61, measles 124, smallpox 4, scarlet fever 28.

The death-rate ranged from 9.0 in Walthamston to 29.7 in Middlesbrough; London 18.9, West Ham 15.9, Brighton 14.8, Southampton 12.3, Plymouth 21.6, Bristol 18.5, Birmingham 16.9, Leicester 14.4, Nottingham 24.2, Birkenhead 14.4, Liverpool 23.0, Wigan 19.9, Bolton 15.8, Manchester 16.4, Salford 17.6, Halifax 19.7, Bradford 17.6, Leeds 15.8, Hull 19.6, Sheffield 18.9, Newcastle-on-Tyne 16.8, Cardiff 15.3, Rhondda 27.1, Kings Norton 12.0, Merthyr Tydfil 28.9.

METEOROLOGICAL RECORD.

For the week ending February 11, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 5	30.50	19	26	7	52	47	50	N W	S	12	8	C.	C.	0
M.. 6	30.00	11	33	22	94	100	97	E	N W	20	14	N.	O.	.71
T.. 7	30.00	14	29	15	78	58	68	W	N W	18	24	O.	C.	T
W.. 8	30.36	19	31	12	51	35	47	N W	N	18	4	O.	C.	0
T.. 9	30.10	12	32	20	98	98	98	N W	E	5	8	N.	R.	.29
F.. 10	29.81	14	40	26	100	45	72	W	W	9	15	O.	C.	.11
S.. 11	30.32	10	36	16	53	48	50	W	W	15	8	C.	C.	0
☞	30.16		31	17			68							1.11

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY MEETINGS.—Boston Medical Library Meetings in conjunction with the Suffolk District Branch of the Massachusetts Medical Society. Program of the meeting of the Section for Surgery to be held Wednesday, March 1, 1905, at 8.15 P.M., at the Library, 8, The Fenway. John Ware Hall. The Surgery of Renal and Ureteral Calculi,—The Actual Results of Cases at the Boston City Hospital: Dr. J. H. Cunningham, Jr. The Results of Cases at the Massachusetts General Hospital: Dr. Hugh Cabot. The Diagnosis of Renal Calculi from the Examination of the Urine: Dr. Henry F. Hewes. Other Means of Diagnosis of Calculi: Dr. Benjamin Tenney. Remarks on Operations for Renal and Ureteral Stone: Dr. Paul Thorndike. Discussion: Dr. E. W. Cushing, Dr. Arthur T. Cabot, Dr. Francis S. Watson, *et al.*

RECENT DEATHS.

ISRAEL THORNDIKE HUNT, M.D., M.M.S.S., died in Charlestown, Feb. 16, 1905, aged sixty-five years.

P. ROOSEVELT JOHNSON, M.D., died at his residence in Sag Harbor, Long Island, N. Y., on Feb. 12, in the seventy-eighth year of his age. He was a son of the late Rev. Samuel Roosevelt Johnson, D.D.

HENRY RIENZI BROWN, M.D., M.M.S.S., died in Leominster, Feb. 16, 1905, aged sixty-three years.

BOOKS AND PAMPHLETS RECEIVED.

The Principles of Hygiene. A Practical Manual for Students, Physicians, and Health-Officers. By D. H. Bergey, A.M., M.D. Illustrated. Second Edition, thoroughly Revised and Enlarged. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

Travaux de Chirurgie Anatomo-Clinique. Par Henri Hartmann. Avec la collaboration de: B. Cunlo, Legéner, Lebreton, Esmonet, Lavenant et Prat. Deuxième série. Paris: Georges Steinheil. 1904.

Saunders' Question-Compends. No. 4. Essentials of Medical Chemistry, Organic and Inorganic. Containing also Questions of Medical Physics, Chemical Philosophy, Analytical Processes, Toxicology, etc. Prepared especially for Students of Medicine. By Lawrence Wolff, M.D. Sixth Edition, Thoroughly Revised by A. Ferree Witmer, Ph.G. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

The Practical Application of the Röntgen Rays in Therapeutics and Diagnosis. By William Allen Pusey, A.M., M.D., and Eugene Wilson Caldwell, B.S. Second Edition. Thoroughly Revised and Enlarged. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Laboratory Guide in Elementary Bacteriology. By William Dodge Frost, Ph.D. Third revised edition. Illustrated. New York: The Macmillan Co. 1904.

Original Articles.

CERTAIN ASPECTS OF BILE DUCT DISEASE.*

BY JAMES G. MUMFORD, M.D., BOSTON.

WHEN you come to consider disease of the bile passages there are two questions which present themselves at once:

(*a*) *Shall you operate?* and

(*b*) *How shall you operate?*

To the first of these questions let us turn ourselves; but let us get on firm ground. I believe that much of the prevailing phraseology regarding these conditions is misleading. Writers continually talk about *disease of the gall bladder* and *gallstone disease* — phrases well enough so far as they go, but they do not tell the whole story. Even Mayo Robson, in the various editions of his well-known book, uses the title, "Gall Bladder and Bile Ducts." The classical word *cholelithiasis* is equally misapplied. We are discussing *disease of the bile passages*, of a system of passages. The gall bladder is but a *part* of the system; cholelithiasis is but *one manifestation*, though an important one, of the disease. We have to deal with infection, inflammation, stone formation, suppuration, ulceration, cicatrization, stenosis, perforation, fistula formation, adhesions, peritonitis, local or general, malignant changes, and the involvement of other organs.

If you will view carefully this complex process you will see that the confusing and involved, many-titled investigation quickly resolves itself into the study of one broad, progressive and far-reaching problem.

The first and most important fact for the practitioner to appreciate in connection with disease of the bile passages is that the underlying cause is an infection; and the method of that infection is worth considering, although indeed writers are not as yet altogether in accord as to what that method may be. Certain facts, however, are to be regarded as fairly well established: that the organism concerned is commonly the colon bacillus, though the bacillus typhosus is not infrequently the offender; and that the mode of entrance is either through the blood current or through the ducts, working upwards from the intestine. The probability is that infection from the intestine is far the more common method. C. A. Ewald, in a paper read before the Congress of American Physicians and Surgeons at Washington, in May, 1903, said: "It is an established fact that our ideas concerning this disease have experienced marked fundamental changes during the last ten or fifteen years. We now know that this condition is due to a bacterial infection and not to the presence of gallstones, the origin of which has always been more or less hypothetic."

There seems to be no doubt that in addition to an invasion of organisms, stagnation of bile is essential to gall stone formation, and it is obvious that bacterial invasion associated with swelling of the mucosa in the ducts results in stagnation. For many years it was assumed that fresh bile in healthy subjects acted as an antiseptic. Recent observations do not confirm this view. Fresh bile is sterile at the best, while some observers have found that it may act as a culture medium. Indeed, Ewald says that in the lower portion of the common duct the bacillus coli communis is commonly found, but that ordinarily it is harmless there.

It is agreed now that stones arise from a catarrhal condition of the mucosa associated with a swelling and desquamation of that membrane, and it is the fact of that catarrh, due to infection, upon which we must constantly fix our attention; that catarrh in itself is not always a trifling condition. It may cause severe symptoms and it may go on to severer grades of inflammation without necessitating the formation of stones, though it is fair to assume from such knowledge as we have, that stone formation very commonly is associated with the process.

In the lay mind, indeed, in the minds of very many physicians, actual stones are the *sine qua non;* and that impression has been the source of countless errors. I recall vividly a recent case in which the diagnosis of "gallstones" was made on the strength of frequent, long-continued attacks of boring pain in the right hypochondrium. Finally, an operation was consented to by the patient, when nothing was found but a thin-walled gall bladder, containing bile-stained infected mucus, draining ineffectually through a partially obstructed cystic duct. The patient and her family were chagrined that no stones were found, and were skeptical about possible benefit from the operation. However, the cholecystostomy which was done, followed by three weeks of drainage, relieved the congestion, freed the ducts and resulted in a permanent cure.

These infections of the bile passages do not commonly make any permanent impression on the hepatic and common ducts, for those structures are main channels and are subject to fairly constant natural drainage, but when the inflammation spreads to the cystic duct and gall bladder it finds conditions there very different anatomically, — conditions which seem designed to favor especially chronic inflammation and stasis, and stone formation.

The acute forms of infection do not result finally in stone formation. The acute forms are ugly things; they go on rapidly to suppuration, ulceration and gangrene even. It is to the chronic, indolent catarrh that we look as the important factor in the etiology of calculi.

Now there is another term as to the definition of which we must be agreed in discussing these processes, — cholangitis. The books are not in agreement. According to some, cholangitis is an acute infection of the bile passages within the liver, rare and fatal. According to others it is an infrequent suppurative inflammation of the common duct and of the radicles of the hepatic duct. Such conceptions are rather ancient, and do not appear to me to express modern know-

* Read before the Obstetrical Society of Boston, Dec. 27, 1904.

ledge of infections of this region. We must regard cholangitis as a not infrequent disease, and I see no reason for limiting the term to inflammation of a portion of the bile passages, nor do I regard it as indicating any particular degree of activity in the infection. Cholangitis is an inflammation of the bile passages, localized or general, mild or virulent, acute or chronic, as the case may be; and cholecystitis is but one manifestation of cholangitis.

Authors tell us that the great majority of gallstones form without the patient's knowledge of discomfort and that often the discovery of their presence is made at autopsy only or in the course of an operation undertaken for some other lesion.

From my own observations I believe that such statements may be variously interpreted. The gallstones actually present as one result of the processes I have been discussing may never have caused the typical pain or jaundice leading to their recognition; but other symptoms may have been present. We know that trouble in the bile passages is one of the common causes of digestive disorders, or that such trouble may be the result of processes in other organs giving rise to digestive disorders. The close anatomical association of the bile passages, especially of the gall bladder, with the duodenum and stomach, must not be forgotten, and surgeons and pathologists very well know that associated diseases of all these organs are common.

Granted now that some sort of disturbance affecting the bile passages has begun; the disturbance may be a simple primary catarrh or it may be an inflammation secondary to disease elsewhere — how are you to know that there is trouble? Why should you suspect it? Does it progress insidiously leaving the patient free from symptoms for months and years or even for a lifetime?

About all that, and in spite of armies of statistics, we can give no definite answer, and we never shall be able to do so. For who indeed may tell? Certainly not armies of statistics. Until very recently statistics were not concerning themselves with such elusive matters. Even now the inquiry is half hearted or is neglected and depends too largely for accuracy upon the personal equation of countless patients and numerous physicians. Moreover, we have yet much to learn about these diseases. Individual clinical experience, and personal impressions must still be invoked largely, and though such sources of information are far from exact they do furnish us with abundant food for thought. See, for example, my own partial experience. Since taking up this line of inquiry I have had to deal in *private practice* with twenty-four cases of operations for bile-duct disease. All of these persons have been cross-examined repeatedly and carefully. In not a single case did it appear that the final and convincing symptoms appeared suddenly and without premonition; that is to say, those final symptoms which led immediately to the operation. To be sure there was no uniformity in these histories, but in all the cases there had been some symptoms of faulty digestion running often over many years.

Here is one common symptom, — common but suggestive: a small and quickly appeased appetite associated with a tendency to corpulence. I have seen this association in several cases and have come to regard it as significant. There are usually other symptoms, — constipation, occasional distress after food, indefinite but sharp occasional pains in the upper part ot the abdomen; a bad taste in the mouth, furred tongue, sometimes nausea, frequent headaches, lack of vigor, exhaustion after slight exertion, diminished diaphoresis, high colored urine and frequent blurring of vision. Such patients will tell you that they are " bilious."

When you have to deal with a " bilious " patient bear in mind that the true condition may be an infection of the bile passages, and that the man may some day be seized with the classical symptoms of gallstones — indeed the stones may even now be present. These bilious folk usually are victims of a defective metabolism. Their digestive processes frequently are at fault; fermentations take place in their intestines and auto-infections result. They may be sufferers from sundry " neuralgic " or rheumatoid pains, — sciatica, lumbago, " stiff neck "; they may experience attacks of arthritis. We used to call such things " rheumatic fever." These are the people to whom the old clinicians assigned " diatheses."

In this discussion it is needless to dwell *in extenso* upon details of the treatment for such cases. Much of it is summed up in the word Carlsbad; change of air and scene, recreation, a carefully regulated life, a restricted diet, exercise, massage, proper bathings, the abundant drinking of saline waters.

The effect of all this is obvious enough. The patient's general condition is improved; the systemic circulation is stimulated and the affected parts are flushed. Hyperemia is diminished, catarrh is relieved, local swelling subsides, normal drainage of the ducts is re-established. In a few weeks the sufferer is well. With proper care and some attention to the conduct of his life after that he may continue indefinitely in good health.

Operations: In considering the question of how to operate in diseases of the bile passages, you will find in the analysis of cases and the experience of many operators that certain clearly defined and fundamental principles become salient — principles as old as surgery. These biliary diseases are infectious in their origin, and in operative treatment you must employ the sound and ancient maxims applicable to the treatment of all infections. If you are dealing with a carbuncle or a palmar abscess you remove the offending material and drain the parts. You drain until all possibility of reinfection has been eliminated.

Apply those same sound principles to infection of the bile tracts and you will be able to meet all the problems of this often obscure and much

debated subject by formulating and observing the following three rules:

(1) Remove stones.

(2) Remove so far as possible all disorganized, degenerated and permanently crippled tissue.

(3) Drain.

In given cases, of course, the intelligence of the surgeon may prompt him to modify or depart from these principles. The condition of the patient may not permit of a radical operation at one sitting; malignant involvement of the parts may render impossible complete removal of the disease; extensive adhesions and associated, complicating disease of other organs may prohibit more than palliative measures, but always we should keep in mind and aim to observe those three cardinal rules.

At present the debate, such as it is, centers around the questions: How shall we operate? Shall we remove the gall bladder or drain it? Shall we remove stones whenever present? Shall we drain the hepatic duct? Shall we ever omit drainage of the operative field? How shall we avoid hernia?

The discussion of *cholecystostomy* and *cholecystectomy* was waged for a number of years, and the multitude of papers bearing on the subject may still be read with interest and profit. Enthusiasm almost to the verge of acrimony was at times displayed and the points of view of sundry writers often were so divergent that it seems as though their premises were too dissimilar to admit of arriving at the same conclusions. Starting with the proposition that cholecystostomy was simple, safe and easy, the advocates of that procedure wished to apply the principle practically to all operations on the bile passages; while those who favored cholecsytectomy averred that the gall bladder was analogous to the appendix, and that when involved in disease, it should always be removed.

We have now learned that there is a distinct place for both operations, though at times, in a given case, the conditions are so intricate and the indications so over-lap each other that it may be difficult for even the experienced surgeon to be sure of which procedure to follow.

Statistics of sundry operators also are unsatisfactory, for we lose the personal equation. The statistics of six or seven years ago may not in fairness be compared with the statistics of to-day, and the desperate chances taken by one operator may be shirked or wisely avoided by another.

Not long ago Frederick Winslow of Boston collected into a valuable paper, as yet unpublished, the statistics of operations on the bile passages performed by a variety of surgeons at the Massachusetts General Hospital. Beginning with the year 1894, he traced the histories with the *end* results of three hundred cases. Very many of those operations were done in the early days, and if you were to study their records you would find much to censure. During most of that time, when it came to dealing with the gall bladder, cholecystostomy was the favorite operation. There were nearly four times as many cholecystostomies as cholecystectomies. Without a knowledge of actual conditions in the individual cases a comparison of figures and an estimate of the value of any operation is futile; nevertheless, these figures have their interest.

	Cholecystomies.	*Cholecystectomies.*
Total cases,	170	44
Traced cases,	128	38
Good results,	46,35.9%	25,66.9%
Poor results,	59,45.6%	4,10.5%
Deaths,	23,17.9%	9,23.6%
Hernias,	4,3.1%	0

Contrast that with the later statistics of the Mayo brothers published in 1903. W. J. Mayo reports 342 cholecystostomies with 8 deaths, a mortality of 2.3%; and 66 cholecystectomies with 2 deaths, a mortality of 3.03%. His "mortality" is a great improvement over Winslow's figures, but it is interesting that the percentage of deaths following the two operations respectively is in about the same ratio in both sets of statistics.

In that paper of his, Mayo does not deal with the question of end results, so that we are unable to make a more extensive comparison of the subsequent histories in the two sets of cases. Mayo's death-rate, however, is so greatly lower than that recorded at the Massachusetts General Hospital that we must assume for it some cause other than that of unsatisfactory pioneer work in the latter case. One salient cause probably is the fact that competent operators in their private clinics can make a better choice of material and are likely to encounter fewer desperate cases than fall to the lot of surgeons doing routine work in a great municipal hospital. As a matter of fact, from inquiries among surgeons of the Massachusetts General Hospital staff we find that their experience in private operating showed a mortality markedly lower than the hospital mortality.

Other writers give a mortality so variable for these two operations of cholecystostomy and cholecystectomy that it is difficult to make any comparison between clinics. We can say merely that complicated operations give a high mortality in the hands of all surgeons; that simple operations give a low mortality; that the mortality when cholecystectomy has to be done is slightly higher than when cholecystostomy is done, because conditions necessitating the former operation are graver, and that the statistics of all surgeons are improving with increased experience, a better appreciation of indications and an improved technique.

Here is a little table showing the results of sundry men. It is arranged chronologically:

	Cholecystostomies. Mortality.	*Cholecystectomies. Mortality.*
1890 Courvoisier,	21.14%	(1890) 25%
1893 Martig,	17 %	(1894) 17.24%
1896 Kehr,	6 %	(1894) 5%
1900 Delageniere,	—	(1900) 23%
1901 Terrier,	—	(1901) 25%
1902 Kehr,	2.1%	(1902) 3.1%
1904 Robson,	2.7%	(1904) 6.2%

After reading such a set of figures as those you think you see very convincing facts, but when you come to analyse the reports you despair of

statistics; for then you see at once — indeed the reporters distinctly state that there are various types of diseases — some indiscriminately mingled, some carefully separated. Take, for instance, those figures attributed to Kehr in 1902: Stern, Kehr's pupil, tells us that Kehr had 237 cystostomies with 5 deaths, a mortality of 2.1%; while Robson quotes Kehr: "but the complicated cases, including malignant disease, had a mortality of 97%." Robson concludes, "cholecystectomy has hitherto undoubtedly been a more serious operation than cholecystotomy [cholecystostomy], but since the method of complete exposure of the operation area has been adopted, it has been rendered both easier and safer."

As I have insisted, such a statement as that last of Robson is open to endless discussion, for safety and ease depend on the conditions presented by individual cases. At any rate all the figures at hand seem to prove that such cases as have been submitted to cholecystostomy show a slightly lower mortality (dependent again on the severity of conditions present) than do the cases treated by cholecystectomy.

A fact more interesting and significant than that of mortality, however, is that of the permanence of cure. Winslow's figures give us information on such end results, and his findings resemble those given in Robson's latest elaborate tables. Winslow found that of the cholecystostomies 35.9% showed good results, while 45.6% showed poor results. On the other hand, of the cholecystectomies, 66.9% were permanently cured and only 10.5% had recurrences or continued to suffer. It should be recognized, however, that "poor results" is a flexible term, and that very many of those unfortunate ones were much better off than before operation, whether cystostomy or cystectomy was done.

Bearing in mind, now, our three cardinal principles, let us see if we can devise any rules to guide us in given cases, as to the choice of cystostomy or cystectomy.

If we find no damage to structure our indications are plain enough. Drain the gall bladder. The various writers on the subject have formulated their ideas regarding the indications for *cystostomy*, and the evidence is convincing that there are three classes of cases in which that operation as a rule is indicated:

(*a*) When the gall bladder and ducts, though containing stones are uncrippled by the inflammatory process.

(*b*) When *acute* inflammatory processes exist with or without the presence of stones.

(*c*) When the common duct is obstructed by unremovable malignant disease.

As an example of class *a* take the familiar one, a freely movable, normal-appearing gall bladder — full of faceted stones — the cystic duct free or containing only small movable stones. In such cases removal of the stones followed by drainage will surely result in restoring the parts to the normal.

Sometimes, rarely, when the patient is too exhausted to endure a long, severe operation, a cystostomy preliminary to cystectomy may be unavoidable.

Class *b* furnishes the greatest variety of cases suitable for cystostomies. It is a complicated class. Class *a* deals with the simplest of stone cases; we may call class *b* the inflammation class.

In empyema of the gall bladder, without disorganization of that viscus cystostomy is indicated; also, in certain cases of chronic catarrh of the gall bladder or bile ducts; in infective cholangitis; in obstruction by hydatids; in dropsy of the gall bladder; in some cases of phlegmonous cholecystitis accompanied by great prostration.

The conditions just described call for cystostomy because serious infections demand imperatively thorough drainage, with the minimum of risk to the surrounding parts.

As for class *c* it must be obvious that with an obstructive jaundice due to tumor occluding the ducts, a cystostomy or sometimes a cystenterostomy is essential for permanent biliary drainage.

Except in cases of malignant disease cholecystostomy done for the conditions described above gives a very low mortality and a large proportion of permanent cures. Such are the conditions for which experienced surgeons are now doing the operation, the effect of which is that by observing your first and third cardinal rules the parts are restored to their normal condition, and interrupted function is resumed.

When it comes to the indications for *cholecystectomy* our course is by no means always so safe and easy. There are two conspicuous indications for that operation:

Class (*a*), Disease crippling the cystic duct; (*b*) Disease crippling the gall bladder.

These two conditions often are interdependent, often are present together. When the gall bladder is inflamed, thickened, ulcerated, necrotic, disorganized, we must expect and look for extensive disease — erosions and strictures of the cystic duct, inflammation and dilation of the hepatic and common ducts; sometimes adhesions and ulcerations with fistulæ into neighboring organs; obstruction at the ampulla of Vater with involvement of the pancreas in the general inflammatory process, even disease of the liver and, at times, duodenal ulcer, gastric ulcer, pyloric obstruction and eventually cancer, as the result of long continued inflammatory disease.

Such are the conditions calling for the application of all three of our cardinal rules, and of rule *two* not least of the three: "Remove, so far as possible, all disorganized, degenerated and permanently crippled tissue." That means cystectomy. A diseased gall bladder, thickened, inelastic, ulcerated, adherent, contracted, is functionally useless; it may remain a nidus of infection.

Damage to the cystic duct, even if other parts are unimpaired, renders the gall bladder relatively useless.

Ulceration of the duct means cicatrices, kinks, twists, stricture, occlusion often, with dropsy of

the gall bladder, or chronic catarrh and future destructive processes.

So with damage to " cysticus " or gall bladder, cystectomy is essential; cystostomy means only palliation and future trouble.

As examples of class *a* we may have stricture of the cystic duct, mucous fistula due to stricure of the cystic duct, hydrops of the gall bladder due to stricture of the cystic duct, and certain other cases in which the gall bladder is very much dilated.

As for class *b:* in that are to be found the manifold conditions involving structural damage to the gall bladder. With or without the presence of stones, for stones often are an incident merely in the course of the disease, we may find phlegmonous cholecystitis and gangrene of the gall bladder, multiple and sometimes perforating ulcers, chronic cholecystitis with contracted gall bladder, or possibly with a gall bladder enlarged, thickened, ulcerated while the common duct is unobstructed; those cases of empyema of the gall bladder in which there is serious damage to structure, cancer or other tumors limited to the gall bladder, and calcareous gall bladder.

I shall have a few words to say, shortly, about the method of removing the gall bladder, but here and now I must insist upon the essential importance of *drainage* in all these operations. You are dealing with an infection and you never can be certain that with the tying off of the cystic duct some leakage may not take place. A rubber tube rolled in gauze or otherwise protected by gauze always should be sewed with catgut into the stump of the duct.

The question of what incision to use in operations on the gall bladder has been much debated; but most surgeons now enter the abdomen through a long incision, splitting the right rectus muscle; and I believe it a good practice when enlarging this incision, to carry it up in the interval between the xiphoid cartilage and the right costal margin as high as possible. The upper surface of the liver will thus be exposed very freely, and as Robson points out, by lifting the lower border of the liver, in bulk, and rotating it (if needful first drawing the organ downward from under cover of the ribs), the whole of the gall bladder and the cystic and common ducts are brought quite close to the surface.

M. H. Richardson has felt for some years that this method of opening extensively the abdominal cavity involves risk of subsequent hernia, and in a valuable paper, read before the American Medical Association in 1904, he urged the advantage of entering the abdomen by a muscle-splitting operation after the manner of the " McBurney incision " for appendicitis. Just how valuable an advance in the surgery of this region his method may prove, is a question. The careful suturing of the present day, and gall bladder drainage through a separate stab-wound, have greatly reduced the chances of hernia in any case. Another and an important advantage of the long incision near the median line, together with the extensive exposure of the ducts, is that exploration of adjacent organs is thus rendered easy, and supplementary operations are facilitated.

As for the method in cholecystostomy, I believe that the employment of the so-called Mixter tube, in common use at the Massachusetts General Hospital, has great and material advantages.

The advantage of the use of the Mixter tube is that no suturing of gall bladder to abdominal wall is employed, with the result that by just so much is the danger of a mucous fistula diminished, —granted, of course, that the ducts be free from stones. At the end of five or six days the wicks are removed; at the end of eight or ten days the ligature is cut away from the tube at the knot, by means of a sharp-pointed bistoury, and the tube is withdrawn. A long narrow track completely shut off by adhesions remains. It shrinks rapidly and closes entirely after a few days.

In my experience it is a great advantage to establish this gall-bladder drainage through a separate stab-wound opening outside of the linea semi-lunaris. The long abdominal incision may then be closed. The danger of hernia is thus reduced to a minimum. In a considerable series of cases, thus treated, I have seen no subsequent hernias.

Speaking of cholecystectomy, W. J. Mayo, writing in 1903, says that in most cases of stone impacted in the cystic duct, cholecystectomy is indicated: " The ducts and cystic vessels are caught with curved forceps just beneath the impacted stone and tied. These sutures are then cut across and the gall bladder and duct with the stone removed from below upwards, almost by traction alone, with an occasional division of some more firm adhesion to the liver." And again, "should the walls of the gall bladder have undergone marked changes, or angulation and stricture of the cystic duct resulting in mucous fistula seem a possible outcome, cholecystectomy is more certain to afford permanent relief. If the cystic duct is completely obstructed so that the walls of the gall bladder participate in the biliary circulation, in spite of the obstruction, detach the organ from the liver and ligate with catgut at the base; but if the gall bladder participated in the biliary circulation, in spite of the obstruction, it is not always wise to ligate the cystic duct, especially if there is a cholangitis present." Under such circumstances Mayo advises removal of the gall bladder and drainage of the cystic duct. To facilitate such drainage he has devised his well-known procedure of removing the fundus and enucleating the lining membrane of the gall bladder leaving the outer layer as a shell or pouch into which the drainage tube may be fastened securely.

The removal of damaged bladder and cystic duct carries out the second of our cardinal principles; but when we come to the question of operation upon the passages lower down — upon the hepatic and common ducts, we find obviously that removal of damaged tissue is rarely possible though removal of gallstones is essential and inevitable.

Up to a few years ago most surgeons felt that

the operation of choledochotomy should be performed with the greatest caution and the least possible disturbance to structure. We have now learned, however, that suture of the ducts is not essential to their restoration of function. When slit up they heal as readily as does the urethra after the operation of perineal urethrotomy. It is our custom nowadays to open the ducts fearlessly when that is necessary for the removal of stones, and to drain them usually without suture when such drainage readily can be applied.

It was an appreciation of the practicability of such drainage that led to the adoption of the so-called hepatic drainage — commonly associated with the name of Kehr, though Richardson employed it so long ago as 1888; and other surgeons frequently have adopted the same measure. The object of hepatic drainage is to withdraw all the bile at once to the surface leaving dry the common duct so far as possible, and to encourage the expulsion by drainage of stones possibly lodged in the hepatic duct or its radicals.

Various incisions for hepatic drainage have been employed; but as long as the opening in the duct is large enough comfortably to admit the drainage tube the results are almost uniformly satisfactory, no matter where the duct be opened. Kehr incises the common duct and pushes his tube up two inches into the hepatic. Other surgeons slit up the cystic and common ducts and through this large orifice insert a tube which in either case should be lightly stitched in with catgut.

This drainage of the ducts serves to carry off infectious material. That is a great object. Cholangitis, in varying grades, is nearly always present, especially if there be stones in the ducts, and drainage in such cases is as essential as is drainage for pleural empyema.

From what has been said it must be apparent that the removal of all stones, when possible, is imperative. Stones in the gall bladder and cystic duct may be reached readily and always. Stones in the hepatic duct may be encouraged to escape through long continued and effective hepatic drainage. Stones in the common duct and ampulla may usually be removed at a primary operation, the patient's strength permitting. However, sometimes, owing to the patient's weakness or to extensive adhesions or to the presence of malignant disease, deep dissection of the common duct may be impossible. Efficient and permanent biliary drainage is demanded, however, even in such cases, and for this the operations of cholecysenterostomy and choledochenterostomy were devised.

Richardson, in an article already quoted, urges the propriety of removing gallstones whenever discovered in the course of abdominal operations undertaken for lesions other than those of the bile passages. I believe his argument to be cogent and final; for, as I have frequently pointed out, gallstones, even though quiescent, may, at any time, give rise to trouble; and their removal through cholecystostomy with a small stab wound and drainage does not add materially to the risks of an abdominal section.

From the foregoing paragraphs it must be apparent that I deem drainage of the deep field an essential in all operations on the bile passages. I have shown that an infection always is present, even when symptoms are quiescent; that infection demands drainage. I do not recognize as proper the maneuver, sometimes undertaken, of removing by cholecystectomy an apparently innocuous bag of stones, discovered in the course of some other operation, *e. g.*, appendectomy, unless, at the same time, drainage be established. Such a cholecystectomy occasionally has been done, and the abdominal wound has been closed tightly without resulting damage; but we must recognize this result as a piece of undeserved good fortune to the surgeon, for every operator of experience knows that the ligature on the cystic duct does not always hold and that leakage sometimes occurs with a resulting general infection of the peritoneum. If you remove the gall bladder you must drain the stump.

I hope that enough has been said to demonstrate without cavil the soundness of the three cardinal rules with which I began this consideration of the manner of operating:

(1) Removes stones; for if left behind they are very sure to cause subsequent disturbance, and we know conversely that after the thorough removal of stones their recurrence is almost unknown.

(2) Remove so far as possible all disorganized, degenerated and permanently crippled tissue; for we have seen how such tissue, when left behind, may become the nidus for subsequent inflammation, stone formation and a return to the invalid condition.

(3) Drain, for without drainage we have no certainty of the removal of infectious material.

PTOSIS OF THE ABDOMINAL ORGANS WITH SPECIAL REFERENCE TO THE KIDNEY.*

IMPORTANCE OF CONSIDERING PTOSIS OF OTHER ORGANS IN THE TREATMENT OF THE KIDNEY.

BY M. P. SMITHWICK, M.D., BOSTON.

SPLANCHNOPTOSIS is a condition with which all present are familiar. Some of the suggested causes are anatomical peculiarities, constipation, rapid loss of flesh, frequent pregnancies and errors in dress. Of these the first, second and fifth were present in a considerable percentage of my cases, the fourth in a few, loss of weight (rarely rapid) in a large percentage. In my experience the first three may be considered results of the real cause of ptosis, and each of the five a contributing cause or coincidence. Often we find marked ptosis of kidneys and viscera in young women who have never been pregnant, never lost flesh excessively or rapidly and never worn corsets. They quite uniformly con-

* The following papers were read at a meeting of the Boston Medical Library in conjunction with the Suffolk District Branch of The Massachusetts Medical Society, Surgical Section, Nov. 30, 1904.

form to a peculiar build described by different observers. The characteristics noted are, especially, narrow chest with diminution of the dorso-lumbar curve. Such cases seem to substantiate Stiller's well-known view that enteroptosis indicates a general disorder of nutrition or development. The prevailing characteristic is weakness. To one observer it is the neurasthenic type, to another the consumptive type. With some evidence of spinal weakness as excessive upper dorsal curve or scoliosis, or with weak foot-arches, it is of orthopedic interest; with deficient dorso-lumbar curve it suggests a cause of ptosis. Whether our attention is attracted by the high-arched palate, by the flabby abdominal muscles, by the unreliable physical or nervous vigor, the fundamental characteristic is weakness — nervous even more than physical, deficient nervous reserve power and infinite capacity for its dissipation.

To one familiar with this class of cases there is striking uniformity in the symptom complex; in fact its uniformity is even more noticeable than the endless variation of detail. Those who are born neurasthenic and from birth frequently overdraw the slender nervous reserve, are likely in early life to show the miserable physique already described. These congenital neurasthenics may show tendency to ptosis of kidneys and viscera at the earliest age, or are likely to do so later unless so fortunate as to accumulate permanent fat and avoid overdrawing their reserve nervous energy. Rapid emaciation tends to produce ptosis, but especially when the cause is nervous exhaustion.

The symptoms of a patient with nephroptosis and gastroptosis may be the same as those of one with simply the atonic gastro-intestinal tract so characteristic of neurasthenics. Nephropexy and gastropexy in the former, and gastro-enterostomy in the latter, or in both, may not alter the symptoms. The fundamental fault is nervous exhaustibility. This was the prevailing condition in the cases which have come under my observation. The chief need for prophylaxis or cure is a permanent and abundant reserve of nervous energy. It should be accumulated by the previous generation. This nervous reserve, without which other desirable conditions, as increase of permanent fat and of intra-abdominal pressure, may be impossible, must be considered of primary importance.

To fortify my impressions as to the frequency with which nephroptosis is associated with other ptoses I reviewed my records of private cases, including all with ptosis of either kidney and excluding all with ptosis of neither kidney. This compelled me to exclude several cases of marked gastroptosis and a few with marked hepaptosis. The minimum degree of nephroptosis for inclusion in my list was that enabling the kidney to be definitely grasped (not touched) during inspiration. With these restrictions I found 68 cases. The right kidney was down in all, or 100%, the left kidney in 20%, the stomach in 62% (and, of course, the colon in an equal number), the liver in 7%. Thirty-four of the 57 females had pelvic examination and there was a marked ptosis of the uterus in some direction in 80%. The urine showed no serious disturbance of the renal function in any case. In no case did a kidney seem to interfere with other organs by pressure. In one case, with marked ptosis of the right and moderate ptosis of the left kidney, there was dragging pain referred to the right kidney, and nephropexy was advised.

It may be claimed that my list, many of which represent the minimum degrees of nephroptosis, are less marked cases than those to be reported this evening. I reply: First, my part is to point out the association of ptoses; second, several cases with marked ptosis of both kidneys showed no symptoms referable to this condition; third, a very neurasthenic man of my series, with the minimum degree of ptosis of the right kidney, was recently examined by a prominent New York surgeon and was told that all his nervous symptoms were due to floating kidney; that nephropexy would cure, was the only cure, and should be done at once. It may be objected that the neurasthenic symptoms to which I refer are typical of nephroptosis. I reply then, that I am unable to distinguish symptoms due to this condition.

Ever since I began practice I have been on the watch for cases of colic due to floating kidney. One case, with rather more than the minimum degree of ptosis of right kidney and ptosis of stomach, was under observation six years. In each of several attacks observed the kidney was very tender. There was severe pain in its region with vomiting. In every attack there was history of indiscretion in diet. In the last, cabbage and veal steak eaten ten hours previously were vomited undigested. Gallstone was supposed to be the cause from the first and exploration urged, but kidney and stomach couldn't be excluded until two big gallstones were lodged in the common duct and found at operation.

Another similar case, with more or less constant discomfort in the kidney region, was a patient of a well-known New York surgeon. He pronounced her symptoms due to liver or floating kidney and had her wear a belt for the latter. I saw her in a typical attack of biliary colic and advised her to allow him to operate. Both patients complained of atonic dyspeptic symptoms. Another similar case has refused to have gallstone demonstrated by operation.

I trust that each of us will carry away from this meeting a clear-cut picture of the indications for surgical interference in ptosis of the kidney.

TREATMENT OF PTOSIS OF ABDOMINAL ORGANS BY ABDOMINAL SUPPORTERS.

BY WILLIAM H. SMITH, M.D., BOSTON.

When Dr. Codman asked me some three weeks ago to report upon the treatment of ptosis of abdominal organs by abdominal supporters, I replied, "That the time was so short that it was doubtful if replies could be received from a sufficient number of patients, to make the paper at all

complete." I have, however, heard from many of them and have been able through the courtesy of Dr. F. C. Shattuck to add some of his cases to my own.

My experience is limited to two kinds of abdominal supporters, in two classes of cases; the first the ordinary unpadded abdominal band, the second, the accurately fitted, padded, corset-like belt. The two classes of cases treated have been simple nephroptosis, with or without Dietl's crises, and nephroptosis with gastroptosis. The ordinary unpadded abdominal supporter has, in my experience, proven of little value except in cases of marked diastasis of the recti muscles; with the corset-like, padded belt my experience has been greater, and from the satisfactory result in two cases I was led to study its usefulness further.

In the fall of 1900, I was asked to see a young woman, a nurse, who, for several months, had suffered from severe attacks of pain in the region of the right kidney. Returning from her vacation, having gained considerable weight, she took charge of a patient, seriously ill, and through work and worry lost weight rapidly; one morning while on duty she was seized with severe pain in the epigastric region, was nauseated, vomited and felt faint. Upon questioning her it was found that this attack differed from the others only in degree, it was more severe and lasted longer. Her previous attacks lasted usually only a short time, would sometimes be relieved by lying down although soreness would persist for several days. Careful physical examination showed nothing abnormal at first; there was no rise of pulse or temperature, the blood showed no leucocytosis, the urine was negative. While examining her two days after the attack, the right kidney was found easily palpable, painful; since these attacks had been recurring for several months and were interfering with her work, I advised operation but this was refused. She was then fitted with an abdominal pad, held in place by surgeon's plaster which she wore for some time with a moderate degree of comfort. It was, however, bulky and troublesome.

In February, 1901, a young Swedish woman of twenty-three came to see me; she had had for four years attacks of pain always referred to the right of the epigastrium associated with nausea and vomiting; for several weeks these had increased in frequency and severity. She had tried various methods of treatment during these four years without relief. Her attacks came on mostly while she was at work, would last for several hours, would occasionally be relieved by vomiting, although the soreness in the kidney region would persist. The similarity of the symptoms with those of the nurse attracted my attention and floating kidney was considered possible. At first physical examination was negative. The kidney could not be felt with the patient on her back, on the right or left side, or while standing. The urine examination was negative, the blood was without leucocytosis, there was no fever nor rapid pulse. Within a few days opportunity for examining the patient during an attack occurred and the right kidney was easily felt, so painful upon palpation that she exclaimed, "There is where all my pain has been." As in case number one, entrance to hospital for operation was advised, but refused. On account of the difficulty of putting on the pad advised in the first case, the possibility of some kind of a belt was investigated and she was accurately fitted with a padded, corset-like belt, to be put on with the hips raised in the morning before getting up. The perineal straps were fastened first, the lowest straps next and so on, the object being, not to attempt to pad the kidney itself, but to hold the intestines up against the liver and diaphragm, thus hoping to prevent the kidney from dropping. She was lost sight of, but several months later the nurse who had fitted the belt stated that the patient had returned to have some new straps as she had worn one set out. She called at my office in response to a note and said that she had had no attacks of pain since wearing the belt. She had at times discomfort, but thought but little about it. She has worn the belt continuously since 1901, and during this time has been strong and well. This belt proved so satisfactory that a similar one was made to replace the pad used in the first case. She wore the belt for a year, had no attacks of pain while wearing the belt, gained greatly in weight and has since been well.

In May, 1902, at the request of Dr. Burns of Plymouth, a young woman of twenty-two was examined at the Out-Patient Department of the Massachusetts General Hospital during my service, for a painful tumor of the abdomen. At first no tumor could be felt, and it was only with the patient in the upright position that the right kidney descended and was found at the umbilicus. She had no attacks of pain, but felt more or less constant pain in the region of the right kidney, when on her feet. Her pain antedated her knowledge of the tumor; careful questioning ruled out neuroses and she was advised to have a padded belt fitted, the method of putting it on was carefully explained as well as the reason for it. Dr. Burns writes me that she was greatly relieved for several months. Since then she has moved from Plymouth and whether the result was permanent or not is not known.

A fourth belt was made for a patient who had been wearing a pad for a painful right kidney; she had seen the belt of the first patient and wished to replace her pad with one similar. She had never had painful attacks, but pain and soreness in the region of the right kidney which was easily palpable. She wore the belt for nearly a year, but as it appeared to cause constipation, at one time there being partial obstruction of the bowel, she was told to leave it off. The amount of benefit in this case was practically *nil*, indeed, I think it did more harm than good; she was markedly neurotic and the daily thought about her dislocated kidney at the time of applying the belt did her no good. The reason the belt was advised in her case was because the starting point

of her various neuroses seemed to date from her painful kidney. Since then I have not advised a belt for that class of patient.

In May, 1903, a belt was advised for a woman of thirty-three, who had had soreness in the region of the right kidney for three years. She had never had Dietl's crises, but after standing or walking for any length of time her kidney became sore and the pain would persist so long after she went to bed that it interfered with her sleep. Her right kidney was well below the costal border and freely movable, apparently not enlarged. In reply to a letter asking her present condition she writes that she has worn the belt all the time, removing it only at night; the belt has greatly benefited her, but is at present worn out and she has written for another one.

Two other patients have been ordered belts, one a patient seen by Dr. A. T. Cabot and Dr. Shattuck. In this case the diagnosis lay between movable kidney with Dietl's crises or disease of the gall bladder; the second patient had recurring attacks of pain in the right kidney region, her kidney was easily palpable and tender, she was advised to wear a belt, but as her pain was thought by the surgeon who saw her to be due to the appendix she was operated upon; her attacks followed the operation shortly and she returned and was fitted to a belt. A brief report from the first patient, at present in Switzerland, states that her health has not improved since wearing the belt; the second patient is in New Brunswick and has not been heard from. In none of these patients was there any notable degree of gastroptosis, and the results would lead me to still further trial of the padded belt, in similar selected cases.

A report has been received from four patients where, in addition to nephroptosis, gastroptosis was present; one used the simple abdominal band, three the padded belt. The first patient, a woman of twenty, was fitted with the ordinary abdominal support at the Massachusetts General Hospital in the spring of 1903; in her case there was pain in the region of the right kidney running through to the back, no Dietl's crises. The kidney could be felt wholly below the costal border, the lower border of the stomach being two inches below the umbilicus. She wore the belt two weeks, but it made her nervous and increased her pain; this is not to be wondered at since she put the belt on after getting up, and so padded her kidney tightly, while it was still out of position. This case illustrates one of the difficulties in the use of the belt, where the co-operation of the patient cannot be secured.

The difficulty of interpreting pain in the region of the right kidney is well illustrated by the next case which wore a padded belt. A woman of thirty-six who had had pain for some months in the right kidney region, the pain running through to the back, not occurring in attacks, was examined in June, 1903, at the Massachusetts General Hospital in the Out-Patient Department; the right kidney descended as low as the anterior superior spine of the ilium, the upper border being near the umbilicus, the lower border of the stomach one and one-half inches below the umbilicus; a belt was advised and fitted to this patient, but it increased her pain so that she wore it only a few weeks. Two months later she was operated upon and her right kidney was found floating, and her appendix bent and adherent. She does not state in what the operation consisted, but says that she has since been better. One other patient with gastroptosis and nephroptosis received but little benefit from the padded belt, while the fourth states that she could not do without it.

In simple gastroptosis I have had no experience with belts alone. In five cases they have been used in addition to other well recognized methods of treatment; four wore the padded belts, one the simple abdominal supporter. Three have ordered new padded belts, one can wear hers only at times, as the distention of the stomach with gas causes so much pain that she has to remove the belt. I presume this is due to the tightness with which these padded belts are fitted. The patient with the simple abdominal band has not been under observation a sufficient length of time to warrant any statement as to the efficacy of the belt in her case. In conclusion I would state that while the number of cases is too small to warrant any deductions being drawn, my opinion in regard to the use of belts is briefly this: Without the intelligent co-operation of both patient and physician, but little benefit will follow the use of abdominal supporters; where this co-operation can be secured and a properly fitted belt is made and properly worn, I believe relief is to be obtained in certain cases, especially of nephroptosis with Dietl's crises. In some cases I believe this relief will be permanent.

THE ACTUAL RESULTS AT THE MASSACHUSETTS GENERAL HOSPITAL, FOLLOWING OPERATIVE TREATMENT.

BY F. C. BALCH, M.D., AND J. R. TORBERT, M.D., BOSTON.

Since Dr. Torbert, who has done most of the work in getting up the statistics of the results of operation on movable kidney at the Massachusetts General Hospital, is not able to be here to-night it devolves on me to explain the tables he has made.

We have taken only the results of cases operated on between 1890 and 1904. We sent out ninety letters with a printed form enclosed, and a stamped and addressed envelope. Twenty-six replied and twenty-five letters were returned unopened. This leaves rather a large percentage that must have gone into the waste-paper basket. Dr. A. T. Cabot looked up this same subject in 1902 and he kindly let me look over the replies he had received to a letter which he had sent out. Among his list I found eighteen who had not replied to my letter. He had also reports of two cases which had apparently been overlooked in our search of the records. This gives a total of 92 cases. Of these 92 cases we now have records of 41. Of the total 92 cases, 86 were

females and 6 were males. Of the females 61 were married and 25 were single. Pregnancy was given as the starting point of the trouble in 33 cases, trauma in 10 and in 49 cases the cause was not known. Of these 49 cases 25 were married and 24 were single. The time spent in the hospital varied from fifteen to forty-five days. The average time was twenty-eight days. Seventeen cases had other operations beside the nephropexy done at the same time. There was sepsis in 8 cases. There were urinary symptoms in 22 cases. Of the total 92 cases we have called 28 relieved. Thirteen were not relieved. This leaves 51 from whom we have not heard.

I must say that I am not impressed by the reliability of the reports I have received from the patients as a means of determining how much good comes from operating upon movable kidney. Seventeen other operations were performed upon these patients at the same time as the nephropexy and it is impossible to determine how many of their symptoms were due to movable kidney and how many were due to some other cause, as appendicitis, cholelithiasis, endometritis, etc. Many were very nervous, and convalescence in some of those who now report the best results was often stormy and protracted to such an extent that one is led to question the benefit of the operation. As far as these statistics show anything it seems to me they make clear the fact that we must choose our operative cases very carefully.

Comparatively few of the cases who have movable kidney know it, and many of those who have been told, or have discovered it, have no symptoms in any way referable to the kidney. When there is intermittent hydronephrosis or stomach symptoms evidently referable to the mobility of the kidney something must be done. Even in some of these cases I am very apt to try a suitable supporter first. The condition is apt to be part of a general abdominal ptosis and fastening the kidneys may in no way remedy the trouble. Those seen in a large hospital are usually not able to take proper care of themselves afterward, and I dare say this is one reason why the showing is not better. I have had only seven cases in private practice where I have operated, but my own results would lead me to believe that in outside practice where one can choose one's cases for operation and for supporters more carefully and where one can be sure of a sufficiently long period of rest afterward the results are much better than in our hospital work.

RESULTS OF SURGICAL TREATMENT OF MOVABLE KIDNEY AT THE BOSTON CITY HOSPITAL.

BY PAUL THORNDIKE, M.D., AND L. R. G. CRANDON, M.D., BOSTON.

Frequency. — Out of 272 consecutive women examined by Larrabee[1] 41½%, or 112 cases, showed one or both kidneys to be palpable, and other observers, quoted by Larrabee, found from 46% to 80% to be palpable or even movable. Anatomical studies on the study have been many, and that a certain amount of mobility is normal must be acknowledged. Helm, in a study of 88 cadavers (61 male, 27 female), showed the following results:

	MALE		FEMALE		
	Right %	*Left* %	*Right* %	*Left* %	EXCURSION
Immovable,	42.6	37.7	22.2	18.5	0–1 cm.
Slightly movable,	21.3	21.3	29.6	44.4	1–3 "
Considerably movable,	27.9	34.4	29.6	25.9	3–5 "
Very movable,	8.2	6.6	18.5	11.1	5–8 "

Normal mobility has been further established in a study by Büdinger,[2] and by Watson.[3]

Pathology. — On the causes of this condition the recent monumental work of Wolkow and Delitzin[4] has covered apparently with great diligence the experimental side of the subject. They conclude that movable kidney is an anatomical physiological condition, which assumes a pathological type when the paravertebral renal fossa is insufficiently developed and the intra-abdominal pressure is reduced; that this pathological type is a feminine peculiarity; that prophylaxis will prevent mobility to a pathological degree.

The etiological factors recited by Watson (*loc. cit.*) are:

(1) Enteroptosis — a general sagging of abdominal viscera following relaxation of the abdominal wall, especially in multiparæ. The peritoneum in front of the kidney stretches downwards and a space is made in front and below, into which the kidney sags.

(2) Changes in the fascial and muscular supports of the kidney — changes which are part of a general systemic laxity of tissues.

(3) Sudden wasting of the perirenal fat.

(4) Increase in the size and weight of the kidney, from any cause. Hydronephrosis may, apparently, be a cause or an effect.

(5) Downward pressure on the kidney by an enlarged or by pleural effusions.

(6) Tight lacing.

Symptoms. — This division of the subject has been discussed more than any other. That even an abnormal mobility may lead to no symptoms, and that severe symptoms may appear with slight mobility of the kidney have been clearly shown. Besides painful renal crises (Dietl's), which are undoubtedly consequent on this condition there is an array of symptoms which may appear before the movable kidney is discovered, or may clearly follow discovery. These symptoms include the form of gastric indigestion known as "nervous dyspepsia" and also hypochondiasis or some other variety of the neurasthenic state. To determine whether the mobile kidney is a part of general enteroptosis, whether the symptoms described to it are only a part of neurasthenia or of the period of the climacteric, or whether the nephroptosis is primary is the first clear duty of the diagnostician, but that total and permanent relief of all such symptoms has

[1] Larrabee: BOSTON MED. AND SURG. JOUR., 1903, Vol. cxlix, p. 586.

[2] Büdinger: Ueber Wanderniere. Mittheil. aus d. Grenz. d. Med. u. Chir. Jena, 1899, iv, 265.

[3] Watson: BOSTON MED. AND SURG. JOUR., 1901, cxlv, 318.

[4] Wolkow und Delitsin: Die Wanderniere, experimentel-anatomische Studien, Berlin, 1899.

Cases of Nephrorrhaphy at the Boston City Hospital.

Sex.	Occupation.	Duration of Symptoms	Symptoms.	Physical Examination.	Anatomical Condition found at Operation.	Present Condition or Subsequent Notes. (November, 1904, unless otherwise stated.)
F.	Housewife	7 years	Beginning after confinement. Soreness in right hypochondrium. Noticed tumor. Melancholia at times.	Right kidney felt just below 10th rib. Can be held down by hand during respiration.	1½ inch with respiration.	Better than before operation, but not entirely relieved. Still has soreness in right hypochondrium and back. Cannot do hard work. Has to wear swathe. Hurts her if she lifts or reaches. General health much improved. Would not advise others to have operation.
F.	Bookbinder, sits down while working.	5 mos.	Pain in right hypochondrium aggravated by laughing or crying. Frequent and painful micturition.	Mass in right lumbar felt under ether. No anatomical cause for micturition.	Kidney seen moving with respiration.	"One hundred per cent better." Couldn't work more than two days at a time before operation. Now can work all the time. No pain in abdomen now, but pain across back on hard work. Feels much improved. Would have operation again under same circumstances. Has frequent and burning micturition now at intervals.
F.	Housewife. Since operation worked in bakeshop.	10 years	Pain in stomach, vomiting.	Stomach to umbilicus. Capacity 1080. Both kidneys palpable.	Kidney normal position, but tilted forward.	"Feels like new woman." Very much improved. Has now no pain in kidney. Has pain in back when she over-exerts herself or over-eats. Still has stomach trouble. Has distress p.c, unless she diets. Can do light work, as waiting in store, since trouble. Would go through operation again, and would strongly advise any one else in same condition to be operated on.
F.	Housewife	13 years	Pain in right side and "lower bowel," constantly increased by standing.	Mass smooth and movable. Can be found beneath ribs or pushed into pelvis.	Deep pressure required to bring kidney into view.	1898. Patient in M.G.H. Diag. Probable Tabes. 1902. Returned to M.O.P.D., B.C.H., complaining of abdominal pain which renders her unable to work. Probable recurrence.
F.	Housewife	5 years	Tumor at right costal border at times. Since birth of last child, six months ago, tumor has been "loose in abdomen."	Right kidney palpable and movable on palpation.	Kidney moved freely with diaphragm.	Operation gave complete relief. Was able to attend to household duties two days after leaving hospital, and has done her own work since. Last February (1904) was operated on for abdominal tumor, and since that time has imagined that she felt something "floating around inside" her abdomen. Would advise any other patient to have operation.
F.	Housewife	For some time.	Dragging sensation. Indigestion.	Kidney felt just under anterior abdominal wall lower end on level with umbilicus, left border in median line. Can be pushed into normal place. Felt only with patient on left side. Not felt on back.	Not given.	For two years entire relief from indigestion and bad feeling inside. Since that time indigestion has returned and pain in front of abdomen. Consulted physician, who told her kidney had dropped down again some.
		5 years	Movable lump in right abdomen.			
		12 years	Neurasthenic, indigestion, eructations, palpitation, soreness across abdomen.			
F.	Housewife	1 year	Pain in right hypochondrium intermittent; constant last two weeks.	Indefinite rounded mass in region of kidney, not moving on respiration.	Considerable excursion with respiration.	Since married and moved to Lawrence. Not seen, but said by family to have gained complete relief from operation.
F.	Housewife	5 wks.	General pains, followed by severe pain lower left abdomen. Icterus Pus temps.	Spleen enlarged. Mass in right lumbar not moving on respiration.	Excursion two inches with respiration. Kidney turned so that posterior surface found anterior, and greater convexity interval.	Former landlady says patient still has soreness and weakness in abdomen, and complains of "all gone feeling" in front where incision was first made. Also complains of soreness in back.
F.	Housewife	5 years	Attacks of vomiting with pain in hypochondria, three in five months; starts in right side and radiates through abdomen. Becomes unconscious every time she vomits. Urine dark brown to red with heavy red sediment. Urine normal and pains cease if she keeps quiet and lies down.	Kidney freely movable under ether.	Kidney freely movable.	Sept. 22, 1899. Much relief from nephrorraphy. Operation for gallstones Sept. 26 and discharged relieved Oct. 19, 1899. Second operation for gallstones. Discharged, dead, Aug. 16, 1900. No autopsy.
F.	Housewife	2 wks.	Pain in hypochondrium. Vomited everything eaten for four days. Pain was intense, confining her to bed. Felt soft movable body under right costal border.	Right kidney freely movable.	Kidney freely movable, falling into abdomen as far as median line unless raised by counter pressure on abdomen.	Sept. 12, 1898. Operated for gallstones. Perfectly well after operation for three and one-half months, when she had attack of gallstone colic and was operated as above and discharged. Relieved. No trace of her found.

followed fixation of the kidney is, without question, a surgical fact.

Diagnosis. — Attacks of renal colic with the presence of a somewhat tender, abnormally situated or movable kidney shaped mass, in the flank or abdomen makes the diagnosis probable. If in addition, a normal or occasionally bloody urine with quantitative variations, such as might appear with hydronephrosis, is found, the diagnosis is fixed. Abdominal percussion, gastric examinations, and the state of the abdominal wall will determine whether the kidney condition is part of a general enteroptosis. Gallstone colic has been frequently overlooked, and renal stone usually may be found by x-ray examination.

Treatment. — Uncomplicated mobile kidney, which is undoubtedly causing symptoms, calls for efforts at fixation.

Bands and pads we do not advocate. Such pressure as would be necessary, if long continued, must be harmful, leading to greater flabbiness of the abdomen and to injurious compression of the abdominal viscera.

The state of mind of the patient should be influenced to shut out all but objective influences. All possible effort should be made to improve the general health, and, in particular, the tone of the abdominal and back muscles. When these methods fail to relieve, the kidney should be mechanically fixed by operation.

Despite the frequency, already cited, of ren mobilis, the surgical treatment of this condition is relatively infrequent in large surgical clinics.

At the Boston City Hospital in the last ten years, out of a total of 16,589 operations, only 17 were for movable kidney. Ten of these cases will be briefly recited, merely because they present very accurate present notes on the patient's condition after periods of from one to seven years after operation.

Late results were collected by Watson (*loc. cit.*) as follows:

	Operator.	Cases.	Relieved.	Recurred.	Died.	Remarks.
Albarran	23	21				2 neurasthenics.
Herzberg	11	5	1		1	
La Fourcale	14	8	1	1	1	
Lavergne	14	2	6			
Tillmand	16	6		2		
Tricomi	32	23	1		2	
Tuffier	72	72?				Except those with 9 general enteroptosis
Wolf	21	11				
Watson	6	4		1		1 doubtful

Causes of Failure of the Operation. — Jacobson [5] is most lucid as to the causes of the failure of nephrorrhaphy to give the expected relief. He says:

(1) The operation is performed in unsuitable cases,

(*a*) Where the mobility of the kidney is only, in reality, a small part of the trouble, such as neurasthenia. It should be done in these cases only with the greatest caution. Even nephrectomy has failed to relieve such a case.

In dyspeptic, neurotic women approaching the menopause the operation should be avoided altogether.

In general, enteroptosis and the consequent dyspepsia or constipation or with uterine or ovarian trouble it will be useless to perform this operation unless the other affections are corrected.

(*b*) In a certain proportion of movable kidneys organic disease, cancer, tuberculosis, or hydronephrosis co-exists.

(2) Nephrorrhaphy frequently fails to give permanent relief because of insufficient fixation.

Technique of the Operation. — An oblique incision at least 4 inches long, beginning 1 inch below the twelfth rib and about 2½ inches from the spinus process, should be made, sweeping round towards the anterior superior spine. The latissimus, external and internal oblique are cut across. The last dorsal nerve should be avoided by drawing it aside, if possible. The lumbar fascia is slit; the perinephric fat is carefully torn open; the kidney is pushed into the wound; its capsule is split along the convexity from pole to pole; flaps of capsule are carefully stripped off the kidney halfway along the sides, and these flaps are sewed into the aponeurotic edges of the wound with many (12 to 20) silk stitches. The kidney itself is thus brought just under the wound, but not into it. This is the method of Jacobson, is the method we use and approve in most cases.

[5] Jacobson and Steward: Operations of Surgery, 1902, ii, 162.

SUMMARY.

From 40% to 80% of all women have a palpable or even movable kidney.

The *causes* of the condition seem to be lack of general muscular tone, anatomical peculiarities, or increase in the weight of the kidney, one or all.

The *symptoms* are — a sensation, subjective or objective, of a mass moving from the flank into the abdomen, crises of kidney-pain, a variety of nervous derangements from nervous dyspepsia to neurasthenia.

The *diagnosis* is made on the presence of the mobile tumor, the symptoms just given, and by ruling out kidney-stone, new growth, and gallstones.

The *treatment* should be first, mental; second, development of abdominal and back muscles; and last, if necessary, and no contra-indication exists, fixation of the kidney by operation.

The *prognosis*, after an operation, which is technically proper, is for perfect cure.

Clinical Department.

CICATRICIAL CONTRACTION OF THE HAND. TRANSPLANTATION OF ABDOMINAL FLAP. RELIEF.

BY JAMES S. STONE, M.D., BOSTON.

ON Dec. 16, 1902, C. McP. of New Brunswick had her right hand caught in a mangle. The felt roller passing on to the back of the hand pressed the palm down with a weight of 1,300 pounds against the hot

drum, where it was held for three and three-quarters minutes, or until the machinery could be stopped and the roller lifted off. Considerable of the skin of the palm peeled off at the time, adhering to the drum. In about ten weeks the wounds had healed, the fingers contracting during this time and afterward until a year later the hand appeared as in the first photograph.

The distorted thumb was held firmly against the outer dorsal surface of the metacarpal bone of the forefinger. The base of the thumb was drawn strongly inward toward the little finger by the contracted scar. The forefinger was flexed over the middle finger, the abdomen, and, at the same time, to draw the attached side of the flap as firmly against the ulnar edge of the palm as the circulation would allow, two quilted sutures of silk-worm gut were passed through the attached edge of the flap, between the hand and the abdomen, and through the long outer lower edge of the abdominal wound. The corners of the abdominal incision were then drawn together by catgut stitches. Dry, sterile, gauze dressings were applied, care being taken not to allow two surfaces of skin to lie in contact. The hand forearm and elbow, were then fixed in position with a plaster of Paris bandage encircling the pelvis and abdomen.

Seventeen days later the patient was again etherized. The plaster bandage and dressings were carefully removed. The attached upper inner side of the flap was then cut free from the abdomen and drawn into position against the ulnar border of the denuded area by strips of crepe lisse fastened with collodion. After the attachment of the flap a small area along a part of the severed border sloughed, but this did not materially delay healing.

A celluloid splint was made to which the fingers could be strapped in order to hold them apart and extended. This was worn at first both day and night, being taken off only when the fingers were exercised. After about four months it was worn only at night. Active and returned.

At this last operation, also, a part of the subcutaneous fat was dissected out from under the flap of skin. Too much had been included in the abdominal flap, as the photographs show.

CICATRICIAL CONTRACTION OF THE HAND — STONE

FIG. 1.

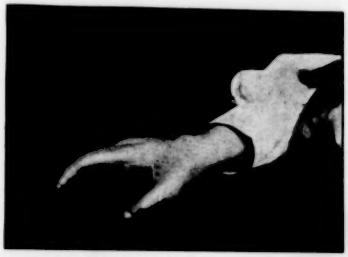

FIG. 2.

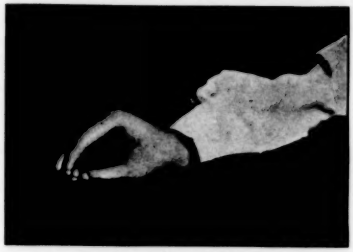

FIG. 3.

The following points in the technique of the operation are suggested by this and another similar case.

All deep scar tissue should be dissected away.

All resistance to complete unfolding of the hand should be overcome.

As far as possible the edges of the skin which is left should be free from scar tissue.

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drum, where it was held for three and three-quarters minutes, or until the machinery could be stopped and the roller lifted off. Considerable of the skin of the palm peeled off at the time, adhering to the drum. In about ten weeks the wounds had healed, the fingers contracting during this time and afterward until a year later the hand appeared as in the first photograph.

The distorted thumb was held firmly against the outer dorsal surface of the metacarpal bone of the forefinger. The base of the thumb was drawn strongly inward toward the little finger by the contracted scar. The forefinger was flexed over the middle finger, the middle finger flexed over the ring finger, while the ring finger was flexed over the little finger which in turn was crowded into the middle of the palm. The whole mass was absolutely immovable with the exception of very slight play in the ring finger which, although very strongly contracted at the base, could be extended slightly in the two interphalangeal joints. The hand was not only useless to her, but was a source of great pain. From within a few days after the accident there had been severe and steadily increasing pain which was greatest in the axilla and along the inner side of the upper arm. Amputation had been advised.

On Dec. 14, 1903, a year after the accident, at the Boothby Hospital, under ether anesthesia, the cicatricial mass in the palm of the hand was entirely dissected away. The fingers and thumb were all forcibly straightened and separated. All the tissues to below the palmar fascia were found to have been destroyed. The tendons of the fore and little fingers were found to have been completely involved in the scar tissue, and had to be sacrificed. The tendons of the thumb, middle and ring fingers had not been destroyed. In straightening the fingers, the metacarpo-phalangeal joint of the little finger was torn open and the tendon sheaths were opened high up toward the annular ligament. Just below the annular ligament large bulbous neuromata fully twice the diameter of the nerve had grown at the injured ends of the median and ulnar nerves. The nerves were drawn down as far as possible and then cut across well above the bulbous ends, which were excised.

A flap of skin and subcutaneous tissue large enough to fill the denuded palm was then turned up from the abdomen directly over the region of the appendix. It was freed at the long, lower, outer border, parallel to, but some distance above, Poupart's ligament. It was also freed at the upper, outer and lower inner ends, while the broad upper, inner side was left attached to the abdominal wall. The free edges of the flap were then stitched with catgut to the skin at the edges of the upturned palm. The broad side of the flap which had been parallel with Poupart's ligament was stitched to the skin at the radial side of the palm; the lower inner end was stitched to the skin at the base of the fingers; the upper outer end to the skin of the wrist. In order to narrow, as far as possible, the wound in the abdomen, and, at the same time, to draw the attached side of the flap as firmly against the ulnar edge of the palm as the circulation would allow, two quilted sutures of silk-worm gut were passed through the attached edge of the flap, between the hand and the abdomen, and through the long outer lower edge of the abdominal wound. The corners of the abdominal incision were then drawn together by catgut stitches. Dry, sterile, gauze dressings were applied, care being taken not to allow two surfaces of skin to lie in contact. The hand forearm and elbow, were then fixed in position with a plaster of Paris bandage encircling the pelvis and abdomen.

Seventeen days later the patient was again etherized. The plaster bandage and dressings were carefully removed. The attached upper inner side of the flap was then cut free from the abdomen and drawn into position against the ulnar border of the denuded area by strips of crepe lisse fastened with collodion. After the attachment of the flap a small area along a part of the severed border sloughed, but this did not materially delay healing.

A celluloid splint was made to which the fingers could be strapped in order to hold them apart and extended. This was worn at first both day and night, being taken off only when the fingers were exercised. After about four months it was worn only at night. Active and passive movement of the fingers was thoroughly and patiently practiced by the patient.

In August, seven months after the original operations, a minor plastic operation was performed to correct a recontraction of the little finger. The second photograph shows the hand ten months after the original operations with the fingers and thumb voluntarily extended. The third photograph shows the hand with the fingers and thumb voluntarily flexed.

At that time, ten months after the operations, the active movement of the fore, middle and little fingers was confined to the metacarpo-phalangeal joints. In the ring finger all the joints could be actively moved. Passive motion was possible in the interphalangeal joints of all the fingers. The motions of the thumb were confined to the carpo-metacarpal joint owing to the ankylosis of the other joints after the accident. The terminal phalanges of the fingers were short and the nails atrophied and curved forward owing to the destruction of tissue at the time of the accident and secondary trophic changes.

Sensation began to appear in the transplanted flap about seven weeks after the first operation, or about five weeks after the detachment of the flaps. Sensation gradually improved. Ten months after the operation, it is fair throughout the flaps. The area touched can be fairly accurately localized; toward the ulnar side the error of localization is never over quarter of an inch, while toward the radial side it may reach sometimes a half or three quarters of an inch. The sensation in the palmar surface of the fingers is somewhat diminished. For about six weeks after the first operation the pain in the arm and axilla continued severe. After that it began gradually to subside. In the course of about four months the pain in the arm and axilla ceased. At about the same time, however, hyperesthesia of the upper part of the transplanted flaps began to give trouble. It was greatest in the region of the hypothenar eminence just below a portion of the scar, which, as the result of suppuration, was thick and hypertrophied. At the time the secondary plastic operation was performed on the little finger this portion of the scar was excised and the edges of the skin were brought accurately together so that they united by first intention. Afterward this hyperesthesia was relieved and after three months had not returned.

At this last operation, also, a part of the subcutaneous fat was dissected out from under the flap of skin. Too much had been included in the abdominal flap, as the photographs show.

The following points in the technique of the operation are suggested by this and another similar case.

All deep scar tissue should be dissected away.

All resistance to complete unfolding of the hand should be overcome.

As far as possible the edges of the skin which is left should be free from scar tissue.

The preliminary work upon the hand may well be done under a tourniquet.

The incisions to free the abdominal flap should be accurately patterned, with allowance for a shrinkage of about a fourth to fit the denuded surface. This may easily be done by placing the supinated hand just below the area from which the flap is to be raised.

The flap should include about 1 cm. of subcutaneous fat. More is objectionable in appearance. More is unnecessary to maintain the nutrition unless the area freed is exceptionally large in extent.

Suppuration is practically inevitable on account of the portions of the denuded area left exposed without the possibility of changing the dressings. There may be considerable odor from the wound, therefore, after about a fortnight.

On account of the probable suppuration no plastic work on bones, joints, or tendons should be undertaken at the time of the operation on the skin.

The free borders of the flaps should be stitched to the skin at the borders of the area to be filled with the greatest possible accuracy in order to secure primary union and to minimize scar-tissue formation.

The attached border should be approximated by quilted sutures to the opposite edge of the skin on the abdomen. These quilted sutures must not be so tight as to interfere with the circulation of the flap. They should be introduced exactly along the line at which the attached border is to be severed later. Under no circumstances should these sutures come within the area to be cut free later. If they are not originally placed with care it is difficult to judge at the second operation along just what line the flap is to be freed.

As far as is possible the corners of the abdominal wound should be approximated at the first operation in order to minimize the area left uncovered. At the second operation the condition of the wound is usually such that accurate suturing of the flaps either on the abdomen or on the hand is inadvisable.

The area on the abdomen from which to cut the flap should be selected chiefly with reference to an easy position of the arm when fixed to the side.

The flap should, if possible, not cross the median line. Dependence should not be placed on the nutrition of the flap if the only vessels left intact cross the median line.

An interval of about eighteen to twenty days should elapse between the two operations.

A splint to hold the parts in an overcorrected position must be worn constantly for at least several weeks and at night for at least several months after operation. It cannot be omitted while there is any tendency to recontraction.

The earlier after the original injury the plastic operation is performed the better is the functional result to be expected. It is entirely unnecessary to wait for cicatrization after the original injury. The operation may be performed as soon as the line of demarcation of the gangrenous tissue appears and the primary inflammation has subsided.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D., BOSTON.

(Concluded from No. 8, p. 226.)

BATHING DURING THE MENSTRUAL PERIOD.

J. CLIFTON EDGAR[11] has tested the traditional belief of both profession and laity that it is advisable to omit bathing during the menstrual period by a study of the recent literature and by a circular letter sent to the members of the American Gynecological Society, the New York Clinical Society, the New York Obstetrical Society and the superintendents of four of the largest training schools for nurses in New York City, as well as the resident trained nurse or medical officer of several colleges for women. He believes that the woman of ordinary strength and health is able to bathe during menstruation, following certain simple precautions, not only without injury, but with marked addition to her personal comfort and benefit to her general health, and arrives at the following conclusions:

(1) All forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by cautious and gentle progression, but not for every woman does this hold good, and surf bathing, where the body surface remains chilled for some time, should always be excepted.

(2) A daily tepid sponge bath (85° to 92° F.) during the menstrual period is not only a harmless proceeding, but is demanded by the rules of hygiene.

(3) In the majority, if not all women, tepid (85° to 92° F.) sponge bathing after the establishment of the menstrual flow, namely, the second or third day, is a perfectly safe practice.

(4) Further, in most women, the habit of using the tepid shower or tub bath after the first day or two of the flow, can with safety be acquired.

CAUSATION AND TREATMENT OF RECENT LACERATIONS OF THE PELVIC FLOOR.

Hengge[12] calls attention to the lacerations of the pelvic floor resulting from a separation of the vaginal from the surrounding connective tissue. In many of these cases Hengge thinks that efforts to protect the perineum indirectly cause laceration by preventing the rapid and easy expulsion of the head. Occasionally severe hemorrhage complicates such lacerations. Immediate suture is the only treatment, and he has obtained primary union in 66%, notwithstanding that the morbidity is high in his clinic due to the fact that the cases are used extensively for teaching. He has observed that a patient may have a severe septic infection and yet lacerations which have been closed by suture unite by primary union.

NECROSIS OF FIROMYOMA FOLLOWING INTRAUTERINE INJECTION OF TINCTURE OF IODINE.

Kubinyi[13] reports the case of a primipara, aged forty-two years, with a multiple fibroid filling

[11] Amer. Jour. Obstets., Vol. l, p. 356.
[12] Monatsschrift für Geburts. und Gynækol., 1904, Bd. xx, Hft. 2.
[13] Zentralblatt für Gyn., 1904, No. 24, p. 775.

the lower abdomen and attended by menorrhagia. She had had intra-uterine injection of tincture of iodine on three days, followed, five days later, by high temperature, pain, chills and a foul vaginal discharge.

At the end of a week, the patient still appearing to be septic, the abdomen was opened. Fresh adhesions were found and the fibroid presented a brownish appearance. Supravaginal amputation was performed and it was found that the endometrium presented a necrotic area with thromboses of the vessels extending into the tumor.

[This case illustrates the great danger attending the invasion of the uterine interior in the case of fibroids. Even an aseptic curetting in a large uterine cavity is often attended by grave symptoms. It is a question whether strong styptics should ever be used in the case of fibroids.]

ASCENDING OR DESCENDING DISSEMINATION OF TUBERCULOSIS IN THE FEMALE GENITALIA.

Baumgarten [14] reports on some interesting work done in co-operation with Basso to study the course of progression of genital tuberculosis in the female. Over fifty rabbits were used, and the results obtained were consistent in all cases. The lower and upper portions of the vagina, the horns of the uterus, and the peritoneal cavity were infected, either with emulsion made from nodules or with actual bits of the tissue itself The peritoneal infection never invaded the tubes or any other portion of the genital tract, and though infection starting from the uterine cornea readily traveled downward, it never progressed in the opposite direction towards the distal ends of the tubes. Infection of the vagina never passed upwards but only downward, and only the urethra of the urinary tract was invaded.

The author, therefore, concludes that as he has already shown for the male, so in the female, tuberculosis of the urinary and genital systems is not reciprocal and that in each case it follows the direction of the normal local currents. In the genital tract this is from the ovary toward the vagina, and in the urinary tract it is in the direction of the urinary flow. Common ground for the two types of infection is, in the male the prostate, and in the female the urethra and lower vagina.

STYPTICIN IN UTERINE HEMORRHAGE.

H. J. Boldt [15] reports the results obtained by him with the use of stypticin during the last seven years. The true name of this drug is cotarnin hydrochlorate, a base obtained from narcotin by oxidation. It occurs as a microcrystalline yellow powder, soluble in water and with an intensely bitter taste.

Boldt used stypticin in 35 cases of fibromyoma, in 11 with benefit and in 24 with no benefit. In one case of excessive menstruation due to an interstitial fibroid the relief was very marked. In 9 cases of hemorrhage due to uterine cancer the results were negative. Complete cure resulted in from two to six days in 5 cases of post puerperal bleeding after removal of retained placenta particles. In conjunction with curetting stypticin was found effective in hyperplastic endometritis, but in the glandular form the results were negative. In various forms of non-suppurative pelvic inflammation only 3 out of 23 patients were not relieved by stypticin. In irregular bleedings during pregnancy, stypticin had been found very beneficial and no unfavorable symptoms had been noted. Satisfactory results were also obtained in profuse menstruation in virgins where no changes were found in the pelvic organs, and in atypical bleedings during the climacteric period where no pathological cause could be discovered.

The dose recommended is two and a half to five grains at intervals of from two to three hours until the bleeding is lessened, then diminish the dose to one to two and a half grains. If a quick result is important it is best to give three to five grains in a 10% solution subcutaneously into the buttocks, using the customary antiseptic precautions. Given by the mouth stypticin is best administered in capsules because of its disagreeable taste.

[14] Berliner klinische Wochenschrift, Oct. 17, 1904.
[15] Amer. Medicine, Vol. ix, p. 93.

Reports of Societies.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT BRANCH OF THE MASSACHUSETTS MEDICAL SOCIETY. SURGICAL SECTION.

Meeting of Nov. 30, 1904.

Papers were presented on the general subject of

PTOSIS OF THE ABDOMINAL ORGANS WITH ESPECIAL REFERENCE TO PTOSIS OF THE KIDNEY.*

DISCUSSION.

Dr. Henry D. Chadwick, Waltham: I wish to speak of the symptoms caused by a movable kidney. One symptom which I consider pathognomonic of this condition is a disturbance of sensation over the area supplied by the ileo-hypogastric nerve on the affected side. This may amount to anesthesia, but more often hyperesthesia of the skin. It is often described as a severe burning or tingling sensation which is very disagreeable and is present most of the time. I have never seen this mentioned, but I have found this to be the most constant and most annoying symptom. When the iliac branch is affected the sensory disturbance is outside the iliac crest, sometimes extending downward over the thigh. When the hypogastric branch is the one involved the burning sensation is referred to the area internal to the iliac crest and a patient usually thinks it due to ovarian or appendiceal origin, usually the latter. I have never yet had a patient complain of this sensation when I could not find a very movable kidney present. The next most prominent symptom is backache which on account of a similar location cannot be differentiated from that produced by a retroverted uterus or other pathological pelvic conditions. There is, however, one point of difference,—a kidney backache will remain the same or

* See page 240 of the Journal.

become worse at night while the ache produced by retroversion will be relieved by lying down. The tight clothing worn during the day seems to give the kidney some support and lessens the amount of abnormal mobility. Flatulency and epigastric distress are also usually present and erroneous diagnoses are frequently made of digestive troubles when the underlying cause is a movable kidney.

The proper treatment for these cases depends not upon the amount of mobility of the kidney, but upon the severity of the symptoms.

A kidney which has apparently little mobility may be a source of more disturbance to the general health of some individuals than one much more freely movable will cause in persons of a different temperament.

I have had unsatisfactory results with treatment by various kinds of supports and have abandoned their use except in patients who have flabby abdominal muscles and probably general enteroptosis. In such individuals the support of an abdominal belt is beneficial, but I do not think even then that the kidney is supported, but only the other organs whose natural support, the abdominal wall, has relaxed and is incapable of performing its functions. Therefore, I advise a patient who is more or less incapacitated for labor, or who is in a poor nervous condition by reason of a movable kidney, to be operated upon rather than attempt to get relief by wearing a support.

I don't advise an operation in all cases, but only in those whose health is seriously impaired. Others whose symptoms are slight and not constant, I advise general tonic treatment, and in many instances they get along very well with perhaps occasional days of discomfort. I feel very strongly, however, that such patients should be told the cause of their symptoms. I believe that if they trust us to the extent of coming for advice, we should be in duty bound to be truthful with them, and if after examination we feel that a movable kidney is the cause of their symptoms, however slight they may be, we should tell them so frankly without reservation. I cannot believe that a patient will become a neurasthenic any sooner if she is told she has a movable kidney than she would without that knowledge. The discomfort arising from that condition plus the anxiety caused by ignorance of its cause will, it seems to me, have a much more depressing effect upon her nervous system.

I do not mean, gentlemen, to have you infer that if in the course of a physical examination I found a movable kidney, which did not produce symptoms, that I would tell the person of it, that would not be necessary and would be unwise.

I have operated upon twenty patients for this condition — three of them were double nephropexies. I have had three failures. One of my earliest cases was unsuccessful because the kidney again loosened and was eventually as movable as before, the symptoms returned but were no worse. This failure was the fault of my technique. Two others were a success as far as permanent fixation was concerned, but the pronounced neurasthenic conditions which had existed for years persisted after fixation and although the direct kidney symptoms were somewhat relieved, I do not count them successes. The seventeen others are in every way much improved and some of them who had been obliged to give up work have since resumed their old occupations without discomfort and remain in excellent health. The operation is not a serious one — there is no shock. The mortality should be *nil* or at most not more than that of general anesthesia. I cannot, therefore, but feel that nephropexy should be performed in all cases of movable kidney with pronounced symptoms and also that operation should not be delayed until a serious neurasthenic condition exists, for in such cases there is less hope of success.

DR. ARTHUR T. CABOT said that the subject of movable kidney was so large a one that he would offer remarks only on one or two phases of it. He spoke as follows: Much remains to be learned about movable kidneys to enable us to explain why in one case a slight amount of mobility causes serious symptoms, while in another a very movable kidney gives no discomfort and is discovered only by accident. He thought that the nervous system, or rather the nervous balance of the patient had something to do with such discrepancies. In one case the nervous system resents a slight irritation and finds cause for graudally increasing irritability and wear until we have a case of pronounced neurasthenia. Another patient bears with equanamity what would seem to be a serious drag on the kidney pedicle, and shows no symptoms of a neurasthenic kind.

It may be that variations in the circulation have something to do with the differences in the symptoms produced by displacement. It is to be remembered that the right kidney which is most liable to displacement, owing to its position beneath the liver which presses it downward, has an arrangement of the blood vessels very favorable to the production of congestion.

The vein is short, coming from the vena cava which lies alongside of it, while the artery which crosses over from the other side of the spinal column is considerably longer. Consequently, when the organ is displaced downward even by a small amount, the drag is first felt by the short, thin-walled vein. The return of the blood from the organ is thus interfered with, while the access of blood through the artery is unobstructed. I have seen three cases of serious hematuria resulting from the displacement of the right kidney in which the bleeding was brought to a stop by raising the patient's hips in bed, so that the kidney tended to sag upward rather than downward.

Dr. Smithwick has spoken of errors in diagnosis where cholelithiasis has been mistaken for a movable kidney; and in Dr. Crandon's report of cases, two such are reported. In this connection, it is important to remember that the swelling and increased weight of the liver during repeated attacks of congestion cause it to press down upon the kidney and to dislocate it downwards. Many cases are observed in which this downward displacement causes congestion and enlargement of the kidney. When this condition occurs frequently, a distinctly movable kidney may be the result.

It is well to carry this in mind and not to think that upon establishing the diagnosis of cholecystitis we can dismiss the question of displaced kidney from consideration.

The liver may be primarily at fault, and yet after that condition has been corrected, the displaced kidney may still give rise to symptoms and require attention.

When to operate?

When it is clear that symptoms are caused by the drag of the kidney and when these symptoms are becoming more and more pronounced, it is wise to fasten the organ in place early before the irritation has set up serious nervous symptoms, and also before the formation of a hydronephrosis or of a sub-acute nephritis, such as may be caused by the frequently repeated congestion. It has been my experience to find that the patients who were greatly benefited by the operation were those in whom the symptoms had existed for a comparatively short time; whereas, in those patients with pronounced nervous symptoms which had existed for four or five years before operation, the result has been usually unsatisfactory. This

coincides with the usual experience in pelvic surgery. For there we certainly find that after serious nervous symptoms have long associated themselves with the pelvic irritation of a displaced uterus or prolapsed ovary, an operation for the correction of the local condition often does not relieve the neurasthenia and, indeed, even fails to remove the local pain which has, as it were, established a habit. Here, too, the chance of relief is much greater when the symptoms are of recent appearance.

In regard to the operation, there is no time to speak of the various methods of suturing, but I have for the past two years been investigating the after results of the cases done in my private practice and at the Massachusetts General Hospital, and have been somewhat impressed by the fact that a considerable portion of those patients in whom the fixation of the kidney remained satisfactory and relieved the symptoms were many of them done with insoluble suture material. In placing the stitches it is to be remembered that the capsule is the only thing that holds, and various methods have been devised for getting as good a hold of the capsule as possible without invading the parenchyma. It is a very rare thing now to see any hematuria follow these operations, showing how little the secreting portion of the kidney is invaded.

In determining the position of the kidney in which we should try to fix it, I have been in the habit of noting the effect of respiration upon the organ and have endeavored to fix it at the highest possible point where it is not impinged upon by the liver at its lowest descent during respiration. If it is fixed higher than this, there is danger that it will again become loosened by the constant pressure of the liver in its descent.

Ralph C. Larrabee: A year or two ago a careful study was made in the Out-Patient Department of the Boston City Hospital to determine the frequency of movable kidney.[1] As a result it was found in more than two fifths of the women applying for treatment. It was found, further, that the symptoms commonly attributed to movable kidney were as frequent in those without it as in those with it. In view of these facts one must be very cautious in attributing such common symptoms as backache, neurasthenia and constipation to movable kidney. The latter is to be regarded as a common anomaly rarely productive of harm.

As regards treatment, my experience with the corset-like apparatus has been that it *does* give relief and often very great relief for a time. Of course, it must be fitted with great care. Most patients after a while get very tired of it, so that its value is often temporary. However, movable kidney in most cases causes symptoms only during a period of ill-health from other influences, and for tiding the patient over such periods the apparatus is of great value. When the patient has regained her usual health it can be dispensed with. Proper hygienic and reconstructive treatment, with the avoidance of such causative factors as tight lacing, improper diet and constipation will then be in order.

I believe that the operation for movable kidney is, in comparison with the frequency of the condition, very rarely needed. If there are severe symptoms, *which can with reasonable certainty be attributed to the renal ptosis*, operation is justifiable. When such complications as hydronephrosis are present there can be no doubt or hesitation. Operation is not justifiable to prevent such complications when they are not already present. The dangers of the operation are not insignificant. Keen[2] estimated the mortality as 2% to 3%. More recently McWilliams[3] has reported from the New York Presbyterian Hospital a series of sixty-one operations with two deaths. Surely the mortality of the condition itself is nothing like this.

The immediate results of operation are usually good, but of the three cases seen during the study referred to who had been operated upon for the condition previously, not one had experienced permanent relief, though in all the kidney had remained in place. This mechanical success with symptomatic failure is not uncommon and is probably due to the great danger which besets the extremist — the danger of attributing to movable kidney symptoms not due to it at all.

Dr. W. M. Conant: I have been interested in the papers which have been read this evening on ptosis of the kidney. There is no doubt that there are a certain class of cases which are very much helped by the use of the abdominal belt. Where the cases are not severe, I feel sure that much can be done with a belt in the way of relief, and I think that some form of abdominal support should be used whenever for any reason an operation is not desired. The fact that ptosis of the kidney is only a symptom of a more general condition and is often associated with other pathological lesions, is too often forgotten. Fastening the kidney will not relieve trouble in the appendix nor will it relieve symptoms due to gallstones or symptoms due to some disturbance in the pelvis. I think, therefore, that some form of operation should be employed from which a careful exploration can be made of all the abdominal organs before fastening the kidney in place. It is not possible to make a satisfactory examination by the posterior method of operation. No one, I think, can doubt for a moment, that there have been cases where the kidney has been stitched up and the symptoms have not been relieved because other pathological conditions which should have been attended to have remained untouched. While the operation of dilating and curetting is a valuable one in certain cases, I do not suppose any one would expect the operation of dilating and curetting to relieve the symptoms in the pelvis when there was a retroversion of the uterus, and trouble in one or both tubes and ovaries. It must be apparent to any one, I think, that the simple fixation of the kidney is very analogous as far as the relief of all the abdominal symptoms is concerned, as the operation of dilating and curetting would be in severe cases of pelvic disturbance. There is one reason why the lateral operation is to be preferred to the posterior one, in that it gives an excellent opportunity to explore the peritoneal cavity before fastening the kidney. There is also another reason, and that may be called an anatomical reason, in that the kidney lies in a more or less deep trench made by the muscles of the flank, the psoas muscles being in the inside and the quadratus on the outside, and this trench shallows until it reaches the crest of the ilium. At that point there are the powerful arcuate fibres of the diaphragm; it is, therefore, at this point that it is advised to fasten the kidney, so that it rests as it would on a shelf, and then several stitches (usually some absorbable material is used), are put on the posterior and external border of the kidney. When the patient stands up and takes a long breath, it is noticed that the kidney comes out with a sliding motion, the lower portion presenting first. If, therefore, the kidney can be held on a shelf and the posterior wall stitched up, it will prevent the kidney from moving. It seems unwise to try to fasten the kidney high up when there is a ptosis, as there is in most cases, of some of the other organs of the body. In the last twenty-five cases that I have done I have not failed to find trouble either with the gall bladder,

[1] Larrabee: Boston Medical and Surgical Journal, 1903, cxlix, 586.

[2] Keen: Transactions American Surgical Association, viii, 181.

[3] McWilliams: Medical News, 1902, lxxx, 625.

the appendix or the pelvic organs. In more than two thirds of these cases the trouble has been with the appendix. I think, therefore, that if an operation similar to the one described is done and a careful exploration of the peritoneal cavity is made, that the after results of the operation for ptosis of the kidney would be much more satisfactory than the posterior operation.

DR. GEORGE W. GAY: While present at Professor Osler's clinic a few years ago, one of the students reported that in his opinion a certain patient had a floating kidney. After hearing the student's ideas of the proper treatment required, the Professor said that no treatment was necessary, if the patient did not know that she had a displaced kidney. This remark, taken with the large range of opinions and experiences expressed here to-night, would seem to indicate that we should not be in a hurry to advise an operation for a movable kidney. Many patients have no symptoms; many are only temporarily relieved by an operation; in many the symptoms are due to other causes; a few get no relief from treatment of any sort. Operations that do no good prejudice the public against surgery. Hence it behooves us to be careful in recommending operations to neurotic women.

DR. C. P. PUTNAM: In the discussion this evening little has been suggested in the treatment of movable kidney except operations and belts. In fact by another treatment much can be done. Patients suffer in an acute and a chronic way from strangulation of the ureter and the blood vessels by falling of the kidney, and in either case this pain can often be entirely removed by pushing up the kidney and holding it up, squeezing it in fact, while the patient stands erect with the abdominal muscles relaxed. How often this must be repeated depends on the case, but if it has to be done often the patient can generally learn to do it for herself.

I do not refer to cases when there is any doubt about the diagnosis, but to cases where we can feel the kidney, almost grasp it and where great relief to pain takes place in a few minutes. In such cases there is noticeable a decided reduction in size and marked increase in mobility after a short manipulation.

This cannot be done satisfactorily with the patient lying down. The erect position is necessary for thorough and rapid drainage; often, indeed, it is impossible even to feel a movable kidney except in the erect position, still less to manipulate it. The only difficulty experienced by a fairly intelligent patient in performing this manipulation for herself arises from the contraction of the abdominal muscles sympathetic to that of the arms which has to be quite vigorous, but after a while by half sitting, half leaning against a table the patient can learn to use the arms and yet relax the abdominal muscles.

Patients who have suffered intolerably before the true diagnosis has been made have been much relieved and kept comfortable for years in this way. Meanwhile the kidney does not stay in place, but is kept in a condition of non-strangulation and performs its functions painlessly.

DR. ALBERT H. TUTTLE: As I have some opinions regarding the cause of certain symptoms and effects of ptosis of the kidney which have not been mentioned here to-night, I will take this opportunity to express the same, which are the results of observation of some seven or eight cases that have come under my care. These opinions are in perfect harmony with the large amount of data on ptosis of the kidney already presented by the previous speakers. Some time ago I received a hint from two cases: one a hydronephrosis with downward displacement, the other a pyonephrosis, also displaced, that the pain or burning sensations mentioned by the physician from Waltham were due to changes in the ureter. In the displacement of the kidney the ureter is more or less bent and near the brim of the pelvis often so acutely as to produce congestion, infiltration, stricture, or ulceration, that ultimately leads to a hydronephrosis or, if infected, to a pyonephrosis of the kidney. Unless the flexion forms more or less of an acute angle there is little or no pain or other symptom manifest. The importance of operating for displaced kidney is to correct the bend in the ureter and prevent the changes that sooner or later are apt to follow from this condition. When operation is delayed until structural changes have occurred in the ureter the results are liable to be imperfect, and if the kidney is not anchored high enough to correct the kink in the ureter the symptoms will not be relieved. I have had no autopsy examinations to prove these statements and only the two operative cases where I could demonstrate their existence, but from *a-priori* reasoning from the symptoms and history of this trouble I am satisfied that these ureteral changes play an important part in the symptomatology of ptosis of the kidney.

DR. CRAIG: I fear that Dr. Smithwick will hardly be granted his desire that we may all leave this meeting with a perfectly clearly defined knowledge as to when to operate upon ptosed kidneys and when to let them alone unless we shall all become suddenly endowed with a keen differentiating judgment, because, while it is undeniable that there are many, indeed a great majority of, movable kidneys which cause no symptoms and hence are best untreated, it is equally undeniable that there are individual examples which do cause symptoms and which insistently demand surgical treatment. The differential judgment is necessitated by the fact that each case must be studied entirely upon its own merits as the degree of disability, and therefore the need for treatment seems to be in no wise dependent upon the degree of ptosis or mobility.

Regarding the treatment by belts, I should like not only to endorse Dr. Stone's views as to treating the belt as should be treated an elaborate piece of orthopedic apparatus, but I should like to advise that in addition it be considered a splint. The effect of splints upon the muscles of the extremities is well known, and even casual observation will soon convince any one that that of an abdominal belt is exactly similar upon the abdominal muscles, varying only in degree. Therefore, it has been my experience that any case benefited by a belt has been equally benefited by systematic stimulation of the abdominal muscles by carefully regulated exercises, and where it has been possible, massage, thus in a surprisingly short time bringing the muscles themselves to do the work so poorly and artificially done by the belt. And further, nothing can excuse the omission of such exercise when a belt is used, as otherwise, at the expiration of, perhaps, a year the patient on leaving off her belt finds herself worse off than at the beginning of its use.

One method of differentiating the symptoms due to a renal ptosis from those due to gallstones is so easy in cases demanding operative interference as to make its omission extremely reprehensible if the kidney demanding operation be the right one, the one in which this error is overwhelmingly most liable to occur. I allude to the extreme ease with which the gall bladder and ducts and indeed nearly, if not quite, the entire under surface of the liver may be explored and palpated through either the right lateral or lumbar incision *before the ptosed kidney has been stitched to the back*. Gallstones being found, cholecystectomy is by this route an extremely simple and quick operation, I

having recently completed the cholecystectomy through the lumbar incision in twelve minutes.

The choice of the post-operative position of the kidney is a matter of importance and it is my opinion that the more nearly we can approximate the original form of the individual patient the better the ultimate result, here as elsewhere.

It is undoubtedly true that before operation the kidney does generally, if not always, glide down the groove as described by Dr. Conant, but by the older methods of operating it was wont to descend by forward rotation after operation as efforts to fix it high led to fixing it firmly only at its lower half leaving the upper pole free to be pushed forward by the respiratory descent of the liver on the right side. And yet this high fixation seems desirable, for one of the most dismal cases it has been my fortune to see came under my care unrelieved by an operation done some months before. The too low fixation of the kidney had left the sensitive kidney below the protection afforded by the costal arch, and the pressure of her corsets or even light skirts was so painful as to leave her well nigh an invalid.

This matter of the post-operative position has led to the adoption of my present technique. Carwardine, in the *Lancet* for June 28, 1902, advocated the fixation of the kidney by the use of strong carbolic acid upon the capsule. While fearful of the use of so large quantities of the strong acid because of the well-known effect of the phenyl compounds I yet essayed its use in small quantities combined with firm suturing. Coarse (No. 5), chromicised catgut is used, the sutures being given multiple insertions through the fibrous capsule only according to the method advocated by Goelet and the entire length of the capsule beside and between the sutures and particularly at its upper pole being lightly smeared with the strong acid. This combined technique has proved entirely unirritating to the kidney as attested by the most careful post-operative examination of the urine, has given the highest possible position, well guarded by the costal arch, and fixes the upper pole so firmly as to preclude all possibility of its forward rotation. This high position is, moreover, the only means of giving relief in that class of cases in which intermittent hydronephrosis or other symptoms are due to the flexion in the ureter.

Dr. F. B. Lund: A careful study of the subject some years ago convinced me that movable kidney was usually a part of a general enteroptosis, a condition usually associated with neurasthenia and debility. It is so common to find a movable kidney in patients with pain in the right side of the abdomen, associated with vague pains in the back, and also so common to find movable kidney with no abdominal symptoms at all, that we must be very careful before ascribing such pains to the presence of movable kidney to make a careful diagnosis. I have sutured a movable kidney in position and afterwards had to operate upon the same patient for gallstones. In my opinion there is little doubt that the entire trouble was due to gallstones and the movable kidney was simply an incident. An important means of distinguishing the pain due to movable kidney, and that due to gallstones and appendicitis, is the history of muscular spasm and rise of temperature associated with pain; in other words, a local peritonitis. A definite local peritonitis never results from movable kidney. Dietl's crises have been, in my experience, extremely rare in the very large number of movable kidneys which I have seen.

I do not agree with Dr. Chadwick, that the muscular spasm in Dietl's crisis is more severe and extensive than an attack of gallstones. I have repeatedly seen in cholecystitis muscular spasm involving the entire abdomen, being, however, more marked over the seat of the injury. The fact that the most extensive mobility of the kidney may exist without producing symptoms should make us very careful in case we find a movable kidney, not to tell a patient about it. More harm can be done to a patient with movable kidney by informing her that she has it than any other way I know of. It is easier to fix the kidney than to remove the fixed idea of a patient.

I do not agree with Dr. Larrabee's statement that the operation for a movable kidney is a dangerous one, and in my experience it has been perfectly safe and comparatively simple.

Movable kidney I have several times found associated with pathological conditions of the kidney; twice with the presence of stones, the removal of which put an end to the symptoms, and once with congenital cystic kidney. The patient was a woman twenty-five years of age, a nurse, who had a somewhat enlarged movable kidney which migrated down to the bottom of the pelvis and caused constant dragging, pain and debility. There were no Dietl's crises: no evidence of obstruction of the urethra. Although the kidney felt enlarged the cause of the enlargement was believed to be due to congestion. The operation disclosed a much enlarged congenital kidney which was fixed in place with considerable difficulty owing to the fact that the stitches could not be made to hold in the pathological tissue. The other kidney was cut down upon and a moderate amount of cystic disease was found. With the aid of an abdominal supporter, the kidney remained in place and the patient was considerably relieved. This case is merely cited to show that in certain cases mobility of kidney may be due to descent from increased weight due to pathological conditions, and such pathological kidneys are much more liable to give trouble than movable kidneys which are normal in other respects.

The writer's experience has led him to favor the iumbar incision, through which the operation can best be performed. Exploration of the appendix and gall bladder is best done through an incision splitting the outer border of the right rectus, for the reason that, in case pathological conditions are found they can be treated through this incision more directly and, therefore, more safely than through an incision so situated as to enable the most accurate fixation of the kidney.

Dr. Paul Thorndike: If we look back through the literature of the early years of this operation we find it full of long lists of cases (almost all women) reported by men of small general surgical experience, many of them from small communities with few clinical opportunities. When we consider the great frequency of movable kidney and, therefore, its inevitable association with more or less obscure symptoms, both physical and mental, it seems tolerably evident that many of these operations should never have been performed. Dr. Crandon was able to find but seventeen cases operated upon at the Boston City Hospital in recent years. This, of course, means that the men in the out-patient department have not, for one reason or another, sent such cases into the hospital for operation. When we consider that in this same hospital in one out-patient service of four months, Dr. Larrabee found 112 movable kidneys out of 272 females examined (41⅛%), taken at random without any regard to the presence or absence of symptoms in the cases examined, and that many other similar statistics are easily available to those seeking them, it becomes tolerably evident that, making every allowance for errors of palpation, there must still be a very large percentage of floating kidneys which do not give rise to symptoms. It is also evident that if one third to one half of the women who frequent the out-patient department of our large hos-

pitals have a greater or less degress of renal ptosis, many of the symptoms for which they seek relief and which are so often ascribed to this condition must be coincident rather than results of renal ptosis. Of the ten cases which Dr. Crandon has reported, one, and perhaps two, were cases of this kind; *i. e.*, gall-stone cases with a coincidental movable kidney.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., Secretary.

MEETING of Dec. 27, 1904. The President, DR. J. B. SWIFT, in the chair.

DR. J. G. MUMFORD read a paper entitled

SOME ASPECTS OF BILE-DUCT DISEASE.[1]

DR. E. REYNOLDS: While my experience in gall-bladder surgery is by no means large, in a number of cases I have sewed up the gall bladder after removing stones and closed the abdominal wound without drainage. I would like to ask the reader what he considers the objections to that method of procedure. In view of the great possibility of overlooking a stone I would add a fourth rule to the three the reader has suggested, — examine for possibly overlooked stones with the minutest care.

DR. J. B. BLAKE: In the statistics given, the figures of one or two operators are so remarkably good that we must not be led to regard them as giving the average mortality from the operation. The only safe rule is to take the average of a large number of different men. One of the operators to whom I refer works under very exceptional circumstances, in an elevated and extremely healthy atmosphere, and his cases are largely drawn from a sturdy agricultural population. Furthermore, he doubtless refuses operation in many cases which we, with our more limited experience, consent to operate upon. A mortality of only 2% to 4% is a better one than we can hope to reach under the conditions here.

It is obvious in looking over the statistics the reader has presented that in many cases cystostomy was done when cystectomy would have been the better operation, which doubtless explains the poor result in so many cases. The question of what is irreparable damage is a very hard one to answer. I should think that with improved technique and greater experience many more cystectomies would be done in doubtful cases. I quite agree that we should always drain, especially when we can do so through a stab wound. As to the occurrence of hernia — from the fact that outward pressure is less in the upper part of the abdomen than it is in the lower, we should *a priori* expect less liability to hernia from gall-bladder incisions than from wounds lower down. I think that the careful avoidance of cutting nerves is a matter of the greatest importance. Another practical point is that if we can secure the cystic artery and tie it the danger of secondary hemorrhage is much lessened.

DR. E. GARCEAU: Did I understand rightly that Mayo is apt to remove the cystic duct if a stone is impacted in it? The reader advises drainage with malignant disease, especially of the pancreas: would not in such cases an anastomosis of the gall bladder and the intestine do as well?

DR. MUMFORD: Dr. Reynolds has spoken of sewing up tight after removing stones. I think that is a dangerous procedure as there will sometimes be leakage with disastrous results. We can never be sure that there is not obstruction lower down with backing up of bile, and if we get back pressure there is sure to be leakage. This will occur very seldom, to be sure, but the danger is too great to be neglected.

It seems to me that Dr. Reynolds' suggestion for a fourth rule merely supplements my first rule — "remove all stones." As to Dr. Blake's question of what is irreparable damage, I grant that we cannot always say. When in doubt, however, cystectomy is the operation of choice. If there is a stone impacted in the cystic duct there is almost certain to be a stenosis at the seat of impaction which will probably give future trouble; therefore, it is better to remove the duct in such cases. As to carcinoma, we can, of course, drain perfectly well into the bowel, but that method has given a much higher mortality than direct drainage.

DR. E. REYNOLDS read a paper entitled, Nephro-Ureterectomy for Tuberculosis.

[1] See page 235 of the JOURNAL.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

(Concluded from No. 8, p 228.)

PTOSIS OF THE ABDOMINAL AND PELVIC ORGANS.

DR. R. C. COFFEE of Portland, Ore., read a paper on this subject, which was accompanied by numerous drawings and illustrations. He drew the following conclusions:

"(1) The peritoneum is attached firmly not only to the diaphragm, but loosely by all its outer surface to the abdominal and pelvic walls by means of loose connective tissue, which allows it to move freely, but holds it always in contact. This connective tissue is much increased around the attachment of the supports of each organ. The irritation underneath and back of the peritoneum is followed by an exudate which fixes it immovably to the abdominal wall. This exudate is soon displaced by an increase of normal connective tissue sufficient to meet the demands. The peritoneum itself is but slightly elastic, its seeming elasticity being due to the elasticity of the subperitoneal connective tissue.

"(2) Two peritoneal surfaces brought together and held firmly in an aseptic state blend and become one membrane. If suppuration or other disturbance occurs, blending does not take place, but inflammatory adhesions are formed. The former is permanent, while the latter is transitory and will be absorbed generally. This differentiation is all-important.

"(3) The uterus is suspended entirely by its peritoneum and connective tissue.

"(4) The so-called true ligaments are not such, but muscles, and therefore perform the same function as all other muscular fibers in the animal organism, which is intermittent contraction, but never constant action. Their function is to sustain the normal poise or balance of the uterus during the changing positions of the body.

"(5) Whatever may be the cause, the condition existing is a stretching of either or both the peritoneum and connective tissue. The condition may be local or general, and may involve the support of one, more than one, or all the abdominal and pelvic organs.

"(6) Treatment in a general way will be the shortening of the peritoneum at the points at fault by some method of plication and blending, or by bringing the peritoneum back to its normal contact with the abdominal wall.

"(7) The method described for suspending the liver is, I believe, almost ideal theoretically, and so far in my experience, clinically and experimentally, in that it shortens the normal suspensory ligament,

and supplements it by extending the ligament to one or both lobes by blending of peritoneum.

"(8) None of the operations for gastroptosis so far are theoretically or practically ideal for all cases. The hammock operation, stitching the omentum to the abdominal wall, is best suited to those cases due to adhesions holding the stomach out of place by its omentum, in which the condition accompanies operations on the lower abdomen or pelvis only. No discomfort has been observed by any of my patients. Posterior gastro-enterostomy is the best operation for those cases due to dilatation or pyloric obstruction of any kind, and is all that is necessary, as it is held by its attachment high up and well back to the transverse mesocolon."

APPENDICITIS, WITH SPECIAL REFERENCE TO THIS DISEASE IN WOMEN.

Dr. Archibald MacLaren of St. Paul, Minn., stated that in the light of recent experiences he believes the only safe advice both to the patient and the physician is that the appendix should be immediately removed in the early hours of every acute attack of this disease, and especially in the first attacks when the symptoms last six hours. On the other hand, he does not believe that every case of appendicitis should be operated upon as soon as the diagnosis is made, because the surgeon frequently does not see these cases until from the third to the sixth day. The favorable time has now passed, and, as Richardson has said, some of these cases are in such a bad condition that the operation itself may be enough to take away the only remaining chance of recovery.

The author has done 422 appendectomies. In the first 241 there were 72 suppurative cases. Of these there were 42 men and 30 women, in spite of the fact that his work is largely that of the surgery of women. During the same time he has removed appendices showing chronic inflammatory changes 153 times in women, and only 17 times in men. He does not quote these figures for the purpose of giving the impression that they fulfil his idea of the true relationship of chronic appendicitis in the sexes. He does not believe that chronic appendicitis is as frequent in the male as in the female, but it probably is not twice as frequent in the latter sex. It is, he believes, only a curious accident that he has seen proportionately so many acute cases in men and so very few chronic cases.

MANAGEMENT OF HOSPITALS IN CITIES OF ONE HUNDRED THOUSAND POPULATION OR LESS.

Dr. D. S. Fairchild of Des Moines, Iowa, said that the problems involved in the management of hospitals in the smaller cities are difficult and complicated, growing out of two important facts: (1) The supposed self-interest of individual members of the medical profession; (2) the lack of experience and knowledge on the part of boards of management.

Public hospitals are generally of three kinds, as determined by the auspices under which they are organized and in part supported: (*a*) Hospitals under the auspices of some church; (*b*) hospitals under the auspices of some society; and (*c*) city hospitals supported by public taxation. The method of appointment of physicians to hospitals is liable to abuse only when piety or church zeal is mistaken for competency. Dr. Fairchild then discussed the management of hospitals at great length.

ARTHROTOMY.

Dr. E. Wyllys Andrews of Chicago read a paper on this subject, in which he described a new method for old dislocations of the shoulder joint, and after mentioning the steps of the procedure at some length, he presented the following conclusions: "(1) It must be considered established that great force is never justifiable in old shoulder dislocations. (2) Few cases can be left unreduced, on account of pain and pressure symptoms, on the brachial plexus. (3) Resection is satisfactory, but not ideal or wholly safe. (4) Arthrotomy by the old incisions is tedious, and has never been widely practiced. (5) Arthrotomy by the author's method is simplified and made quicker and safer. It would possibly be as safe as resection, and much more ideal in results."

CURETTAGE AND PUERPERAL SEPSIS.

Dr. C. E. Ruth of Keokok, Iowa, discussed the etiology of puerperal sepsis, the kinds of infection, prevention, dangers, and then spoke of curettage, drainage, and hysterectomy in such cases.

OUR DUTY TO THE UNITED STATES ARMY AND ITS MEDICAL CORPS.

Dr. Donald Macrae, Jr., of Council Bluffs, Iowa, pointed out the importance of having a more efficient medical corps in the United States Army. He made an appeal to the patriotic sense of the American surgeon in civil practice to stand by the recommendations of the Surgeon-General of the Army, and otherwise to use his best endeavors to relieve a most deplorable condition in the most important branch of the service. He thought that the Surgeon-General should be elevated to Lieutenant-General and be equal in rank to the head of any other branch of the army. A medical officer should be added to the general staff.

A resolution was introduced and unanimously adopted, respectfully petitioning President Roosevelt to direct the military authorities to provide a field medical organization for our army at least equal in all respects to the best that exists in any army, and which will meet the approval of military sanitarians generally, to the end that the sick and wounded in future wars may receive adequate care and attention.

The Secretary was instructed to forward a copy of this resolution to President Roosevelt at once.

REMOVAL OF THE COVERING OF THE OVARIES IN OVARIAN DYSMENORRHEA.

Dr. Geo. G. Eitel of Minneapolis, Minn., presented a preliminary study on this subject, and described the technic of the operation he had performed on seven cases, as follows:

"The ovary is brought into clear view through a median abdominal incision; and one hemostatic forceps is placed at the juncture of the utero-ovarian ligament and ovary, and another on the upper border of the broad ligament close to the ovary (lateral). By means of these two forceps the ovary is held by an assistant in the proper position, while the operator makes an incision with a sharp scalpel from the utero-ovarian ligament to the lateral attachment to the broad ligament through the covering, and then carefully dissects one side, and then the other, down as far as cysts are encountered. The flaps of the covering of the ovary are now trimmed off, preferably by means of a pair of scissors. This having been done, the utero-ovarian ligament is shortened by doubling it upon itself in a similar manner as is in vogue in shortening the round ligaments, in order to hold the uterus in a normal position. There is generally some hemorrhage as the base of the ovary is encroached, which can easily be controlled by pressure forceps and fine ligatures."

THE DIAGNOSIS OF EARLY TUBAL PREGNANCY.

Dr. William E. Ground of Superior, Wis., after going into the diagnosis exhaustively, and quoting from the literature, stated that during the last year he

had operated upon ten cases of tubal pregnancy. He has operated upon twenty-eight cases altogether. His deductions are based on the histories and the gross appearance of the uterus and appendages at the time of operation. He is firmly convinced that ample pathology was present to cause the arrest of the fecundated ovum in the tube. Five of his cases were in primiparæ, who gave a history of painful menstruation and leucorrhea. Thirteen cases gave a history of a prolonged period of sterility; by this he meant three years or longer. The remaining twelve cases occurred in parous women, who had borne children or had been pregnant in less than three years. Many of these women gave unmistakable evidence of pre-existing pelvic disease. One primipara had been married three years, one five, and another eleven, before tubal conception occurred. Two cases occurred in unmarried women, one of whom had had a criminal abortion produced. Complications arose, and she was sent to him for abdominal section, when an unruptured tube containing a six weeks' fetus was found. Another case, a grass widow, was known to have had chronic appendicitis, was taken with sudden severe pain in the right lower abdomen, followed by considerable shock, but she soon rallied and ran a slight fever. At this juncture he saw her. Menstrual irregularities were denied. Tenderness was present rather low in the iliac fossa for appendicitis, the uterus was enlarged, and a slight bloody discharge came from the vagina. There was an ill-defined tumor to the right of the uterus. The abdomen was opened and found to contain blood clots and bloody serum. The right tube was ruptured on its dorsum at about the middle, but the fetus was still in the tube. Chronic appendicitis was also present. The appendix was removed. Two cases had small fibroids, and one had an ovarian cyst as large as an orange on the opposite side.

OFFICERS.

The following officers were elected: President, Dr. H. D. Niles, Salt Lake City, Utah; First Vice-President, Dr. E. Wyllys Andrews, Chicago, Ill.; Second Vice-President, Dr. W. W. Grant, Denver, Colo.; Secretary-Treasurer, Dr. B. B. Davis, Omaha, Neb.

Kansas City, Mo., was selected as the place for holding the next meeting, in 1905, with Dr. H. C. Crowell as Chairman of the Committee of Arrangements.

Recent Literature.

A Text Book of Materia Medica, Including Laboratory Exercises in the Histologic and Chemic Examination of Drugs for Pharmaceutic and Medical Schools and for Home Study. By ROBERT A. HATCHER, Ph.D., M.D., Instructor in Pharmacology, Cornell University Medical School, New York, etc., etc., and TORALD SOLLMANN, M.D., Associate Professor of Pharmacology and Materia Medica in the Medical Department of Western Reserve University, Cleveland, O. Illustrated. 411 pages. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

The book expounds a valuable method for the study of organic materia medica. The student is instructed by laboratory work, describing drugs and performing simple tests for their identification. Considerable stress is laid on adulterants. Part I deals with the study of crude official and unofficial drugs, Part II and III with their histological and chemical examination.

Materia Medica, Pharmacology and Therapeutics. Inorganic Substances. By CHARLES D. F. PHILLIPS, M.D., LL.D. (Aber. and Edin.), F. R. S. and F.R.C.S. (Edin.), Hon. Fellow, Medico-Chirurgical College, Pennsylvania, Member of the Academy of Medicine of America, etc., etc. Third edition. 921 pages. London, New York and Bombay: Longmans, Green & Co. 1904.

The first edition of this work was published in 1882, the second in 1894. The author states that a second volume of this new edition — on the Vegetable, Animal and other compounds — is already in the course of preparation.

Alphabetic order is mainly followed, but in different divisions, making it difficult to find special subjects, as the book is without an index of remedies. Under the index of diseases, no reference is given to many of the remedies listed. The book is unnecessarily long. It contains a large number of references to the literature.

Practical Materia Medica for Nurses with an Appendix containing Poisons and their Antidotes, with Poison Emergencies; Mineral Waters; Weights and Measures; Dose List; and a Glossary of the terms used in Materia Medica and Therapeutics. By EMILY A. M. STONEY, Graduate of the Training School for Nurses, Lawrence, Mass., late Head Nurse, Mercy Hospital, Chicago, Ill., etc. Second edition, thoroughly revised. 281 pages. Philadelphia, New York, London. W. B. Saunders & Co. 1904.

The book contains such general considerations and remarks on the classification of drugs as are usually found in works on Materia Medica. Short accounts are given of the more common drugs used in medicine, alphabetically arranged. The treatment of poisoning is considered. The book is clearly and consisely written and should prove useful for reference and study.

The Art of Compounding. A Text Book for Students and a Reference Book for Pharmacists at the Prescription Counter. By WILBUR L. SCOVILLE, Ph.G., formerly Professor of Theory and Practice of Pharmacy in the Massachusetts College of Pharmacy, Member of the Committee of Revision of the United States Pharmacopeia. Third edition, revised and enlarged. 337 pages. Philadelphia: P. Blakiston's Son & Co. 1904.

A chapter on tablets, on sterilization and disinfection, new matter under incompatibilities, and numerous additions bringing the book into accord with the ninth decennial revision of the United States Pharmacopeia have been added over the previous editions of the work.

The book is specially designed as a practical guide at the prescription counter, but will be found useful for medical students and practitioners as well. It is well arranged and well written and contains much valuable information.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, MARCH 2, 1905.

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DR. OSLER'S FAREWELL ADDRESS.

OUR latter-day journalism, irresponsible as it often is, has outdone itself in its discussion of extracts from Dr. Osler's farewell address, at the recent Commemoration-day exercises at the Johns Hopkins University. Whether due to a temporary silly season from paucity of news, or other motive equally trivial, it is regrettable that so admirable an address should have been brought to the public eye in such ridiculous guise.

The significance of what Dr. Osler actually said, if read in full, can hardly be overestimated, and the address will stand as an authoritative expression of opinion on many matters relating to medical teaching, which the wise will do well to ponder deeply. However much difference of opinion may be aroused, none will gainsay the fact that Osler speaks from an experience which demands both respect and deference. It requires no great degree of intelligence to distinguish between the serious and the jocose in his remarks, and if rightly read, certainly no one's feelings, even if he be past life's meridian, should be ruffled in the slightest degree.

To those who looked for a definite answer to the question as to why he should leave his work in Baltimore for new fields, Dr. Osler gives comparatively small satisfaction. We believe he has for many years entertained very sympathetic and friendly sentiments for the peripatetic medical philosophers of the fifteenth and sixteenth centuries. The suggestion of a relief from the increasing cares and responsibilities of life is made, but the underlying motives he does not attempt to analyze and leaves the matter with the somewhat enigmatic phrase, "It is best that you stay in the wonder-stage." It is, however, not altogether difficult to read something between the lines.

First he queries whether "metabolism is sufficiently active in the professoriate body of our universities." Change is desirable; the loss of a professor may be a positive benefit; it is rarely a serious blow; too long attachment to one institution is apt to breed self-satisfaction and to promote senility. Much of the success of the Johns Hopkins Hospital is attributed to the "concentration of a group of light-horse intellectuals, without local ties." Recognizing the delicacy of the question, he urges the consideration of a fixed term for teachers, either in time of service or age. The following sentences are characteristic: "It is a very serious matter in our young universities to have all of the professors growing old at the same time. In some places only an epidemic, a time limit, or an age limit can save the situation."

Then follow the statements which the daily press has been so vigorously exploiting, regarding the age of accomplishment and the age of uselessness. Osler's ideas on this subject are not new with him. For many years he has been preaching his doctrine, if not stating it earlier in so bold a fashion as now. "The effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty — these fifteen golden years of plenty, the anabolic or constructive period, in which there is always a balance in the mental bank, and the credit is still good." Translated into other language this means, Give the young men a chance to show what is in them; let them bear the brunt of the work; let them have responsibilities and relative independence before they have passed beyond the age of active productiveness. This policy has been followed from the first at the institution which Osler has done so much to mold, with a result which is apparent to everyone. The discovery of young men of capacity, the development of their abilities, and the recognition of their work through academic positions, is the lesson which has been taught, but which has been too often poorly learned by sister institutions. No less does Osler believe in the figurative chloroforming of sexagenarians. "My second fixed idea is the uselessness of men above sixty years of age, and the incalculable benefit it would be in commercial, political and in professional life, if, as a matter of course, men stopped work at this age." We need not take such a statement too literally; Osler certainly did not intend that it should be so taken, but he evidently thinks, and he is him-

self acting on his belief, that upon the younger men should devolve the hard work and the responsibilities. "The teacher's life should have three periods," he said, — "study until twenty-five, investigation until forty, profession until sixty, at which age I would have him retired on a double allowance."

Whether or not such a consummation will ever be reached we do not venture to predict; our purpose at this time is merely to commend to our readers' attention the views of a man, whose insight into educational matters is not to be questioned, and whose convictions are expressed, in this address, in no uncertain terms. If we read his meaning aright, it is a parting plea for the young man in American medicine.

There need be no immediate anxiety about the old men, even about those in the United States Senate. They will probably continue to take care of themselves, aided in large measure by those treading hardest on their heels, who will desire to succeed not only to their offices, but also to their tenure of the same. Those whose feelings have been hurt, or whose nerves have been disturbed by the fear lest President Roosevelt should agitate this subject had best read Trollope's "Fixed Period," recommended by Osler, and be comforted.

SPINAL CURVATURE AND SCHOOL BOOKS.

IN his annual report, Dr. Luther H. Gulick, director of physical training under the New York City Department of Education, states that in view of the large number of cases of spinal curvature observed, and of the fact that these cases arise largely during the grammar-school years, he has made a preliminary inquiry as to one of the possible factors in the case, namely, the carrying of books of considerable weight daily to and from school. The investigations were made in seventy-three schools and in all parts of the city by sixteen different observers, the records covering 410 classes in all grades and including pupils of both sexes. The report goes on to say: "The facts in the seventh year may be taken as fair samples for those of the whole series. Forty-five schools with classes in the seventh year were observed. The average number of books that are required to be taken home is slightly in excess of four. The number actually carried varies from three to seven, with an average number of 4.7. The weight of this pile of books varied from one and a half to nine and three-quarters pounds. These books were carried on the left arm by 69% of the pupils, both girls and boys. The carriage of the body was bent to one side directly in proportion to the load of books carried. The reasons for carrying home the number of books are: (1) Necessities of home study. This would account for 5.2 pounds in the year which I have selected for illustration. (2) The safety of the books, pads, pencils, boxes and so on, since it has been found necessary for their protection that they be removed from the schools when these buildings are to be used for evening schools. (3) The pride of the children, especially the girls, who like to go in the street with many books, in order to appear to be in a high grade. One report noted a child who carried twenty-one blank pads to swell her pile." The steps suggested by Dr. Gulick as being more or less feasible for remedying the condition are as follows: To extend the practice, already prevalent in a number of schools, of having the books taken to and from school twice a day, and limiting to each trip the ones related to the session that is to follow; request the teachers to restrain those children who carry unnecessary material (he feels confident that it is in these cases that the chief evil occurs); advise the children to carry the books on each side alternately; employ some device in schools used in the evening by which it would be possible for the day pupils to store their belongings, so that they need not be removed to and from their homes every day. He thinks it would be an excellent plan to adopt the practice of a number of European schools, where the pupils take their books home in a modified form of knapsack carried upon the back.

SMOKE NUISANCE IN BOSTON.

A HEARING before the Committee on Cities of the Massachusetts Legislature will be held March 3, relative to the abatement of the smoke nuisance in Boston and vicinity. The bill provides that in cities and towns situated within ten miles of the State House the smoke nuisance must be abated, except under the privileges of a special permit. The boards of health of the towns and cities involved are to be charged with the enforcement of the law. Proper penalties are attached to its infringement. It is much hoped that this hearing may have a large attendance.

That the matter with which the bill concerns itself is becoming one of increasing importance to residents in and about Boston is evident to those who have lived in this vicinity during the past

few years. Owing to the increased use of soft coal a smoke nuisance has been generated which at certain times of the day brings Boston into a category not far removed form certain of our western cities. It is, perhaps, not generally known that black smoke means waste of fuel. With intelligent firing and the complete combustion of the fuel smoke may be practically prevented. It is usually through carelessness or through imperfect arrangement of parts of a building connected with fires that the excess of smoke is produced. A remedy is, therefore, clearly possible, provided manufacturers and those using soft coal may be brought to a realization of their delinquencies.

The bill in its present amended form was before the legislature in 1902; in 1903, owing to the coal strike, it was not introduced; in 1904, after passing through the House, it was defeated in the Senate. It is very much to be hoped that this year, after experiencing another twelve months of smoke, the committee and the two branches of the legislature may see fit to pass a law which is eminently reasonable and which, if properly interpreted, can work harm to no one. Public opinion should certainly rise in sufficient strength to counteract any partisan influence which may be brought to bear to defeat the bill.

MEDICAL NOTES.

No Chloroform, No Flowers. — Dr. Osler requests us to state that he has not advised and does not advise chloroform euthanasia for men over sixty.

A more detailed statement we quote from the daily press:

"First, I did not say that men at sixty should be chloroformed. That was the point in the novel to which I referred, and on which the plot hinged.

"Second, nothing in the criticisms have shaken my conviction that the telling work of the world has been done and is done by men under forty years of age. The exceptions which have been given only illustrate the rule.

"Third, it would be for the general good if men at sixty were relieved from active work. We should miss the energies of some young-old men, but on the whole it would be of the greatest service to the sexagenarii themselves."

Another Telephone Electrocution. — Following the recent reports of death from the use of the telephone comes the statement from Detroit, Mich., that a man serving as night foreman at a car house of the United Railway has been killed while using the Railway Company's telephone line. The explanation given is a crossing of the wires of the telephone with those used for operating the cars.

A Dettweiler Foundation. — To honor the memory and the works of the late Geheimrath, Dr. Peter Dettweiler, the founder of the Falkenstein Sanatorium and the first people's sanatorium at Ruppertshain, it has been decided, by his friends, admirers, patients and pupils, to establish an institution bearing his name which shall be a home for physicians who have served in sanatoria for consumptives and who have become invalidated by disease, accident or old age.

For the collection of funds and the final arrangements a committee has been formed under the patronage of H.R.H. the Princess Friedrich Carl of Hesse. This committee is composed of many of the foremost men and women of the German Empire. Of the medical men who have signed the appeal for funds we read such names as Besold, the successor to Dettweiler, Professors Kurschmann of Leipzig, Flügge of Breslau, B. Fränkel, von Leyden and Pannwitz of Berlin, General Dr. von Leuthold, physician to the Emperor, Schmidt of Frankfort, etc.

Contributions are to be addressed to Grunelius & Co., Bankers, 16 Gr. Gallus Strasse, Frankfort on the Main.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon March 1, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 35, scarlatina 37, typhoid fever 6, measles 7, tuberculosis 48, smallpox 0.

The death-rate of the reported deaths for the week ending March 1, 1905, was 18.85.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Feb. 25, 1905, was 217, against 216 the corresponding week of last year, showing a increase of 1 death and making the death-rate for the week 18.43. Of this number 101 were males and 116 were females; 210 were white and 7 colored; 127 were born in the United States, 88 in foreign countries, and 2 unknown; 43 were of American parentage, 143 of foreign parentage, and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria,

31 cases and 3 deaths; scarlatina, 33 cases and no deaths; typhoid fever, 12 cases and 3 deaths; measles, 4 cases and no deaths; tuberculosis, 45 cases and 27 deaths; smallpox, 1 case and no deaths. The deaths from pneumonia were 39, whooping cough 1, heart disease 21, bronchitis 8, and marasmus 2. There were 6 deaths from violent causes. The number of children who died under one year was 29; the number under five years 45. The number of persons who died over sixty years of age was 59. The deaths in public institutions were 53.

A CENTENARIAN. — Mrs. Ann Gallagher, reputed to be one hundred and two years old, died in Marlboro, Mass., Feb. 17.

CONVALESCENT HOME OF THE CHILDREN'S HOSPITAL. — At a recent meeting of the managers of the Convalescent Home of the Children's Hospital it was announced that funds are needed for the equipment and maintenance of the new building in Wellesley which is to be ready for occupancy early this summer. It will be remembered that the old home was destroyed by fire. The year's work had been satisfactory. Two hundred and forty-five patients have been treated with a daily average of 29 against 277 in 1903 with a daily average of 13. The reason for these somewhat unexpected figures is found in the fact that many cases of tuberculous disease have been kept a long period to insure their thorough treatment.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION. — The work of this association is becoming increasingly valuable to the poor of the city. Changes have been made in the past year as announced at a recent meeting which should ultimately tend to an enlargement of the work. It was said that without increasing its scope $16,000 is needed for its continuance. It is evident, therefore, that funds are required, and if liberally provided the work may be still further enlarged. We have frequently commented on the peculiar position which this association holds and the excellent work which it has done in the past and is likely to do in the future if properly supported.

NEW YORK.

NEW RESERVOIRS. — The Mayor has instructed the Aqueduct Commission to proceed at once with the preparation of plans for the two new reservoirs in the Croton watershed which were recommended by the Burr Commission as imperatively necessary for the city's immediate needs. The object of these reservoirs is to supplement the present Croton dam in impounding water now going to waste in that district.

THE MANHATTAN MATERNITY AND DISPENSARY. —The new lying-in hospital, the Manhattan Maternity Hospital and Dispensary, in 60th Street, east of Second Avenue, was opened on Feb. 16. It was erected and partially endowed by Henry A. C. Taylor, and on the board of directors are a number of prominent citizens. The building, which is of brick, is a square structure consisting of five stories and a basement. Eight student-physicians can be accommodated in it, and the institution includes a training school for nurses. There is to be a large out-patient department, which will cover practically all of the upper east side in Manhattan.

FIRST AID TO THE INJURED SOCIETY. — The annual meeting of the First Aid to the Injured Society was held on Feb. 16. The reports showed that, in all, 1,979 persons received instruction during the past year. The total number of such since the organization is 19,435, of whom 14,231 have passed examinations and received diplomas. Among the classes there have been 13 of policemen, with a membership of 398; 10 of firemen, with a membership of 221; and 26 of public-school children, with a membership of 895. At the emergency tent in Van Cortlandt Park there was a class of 35 men. Dr. Edward L. Partridge is the medical director of the society.

A CARDIFF GIANT. — A real "Cardiff Giant" has appeared in New York in the person of George Anger, a native of Cardiff, South Wales, who recently applied for a policy at one of the principal life insurance companies, and was passed as a good risk. His height is given as eight feet one inch, and his weight as three hundred and twenty pounds. He stated that he was known in Europe as "Titian, the British Goliath," and that he had a wife who was but five feet four inches in height.

SCARLET FEVER AT MOUNT VERNON. — Scarlet fever is at present unusually prevalent in Mount Vernon, Westchester County, and at a meeting, held Feb. 16, the Board of Health, believing that the spread of the disease might possibly be due to infected milk, passed a resolution requiring all milk companies to disinfect and sterilize their bottles before using. In case of violation, a fine of $50 is to be imposed for each bottle used without this precaution.

Miscellany.

THE FUTURE OF THE RACE IN CANADA.

In an address recently delivered to the Canadian Club, according to the *British Medical Journal*, Professor Osler spoke of the "incessant dribbling" of their young men into the United States. A million Canadians, he said, were in the States, many in prominent positions in finance and in the professions, particularly medicine and theology. There they have been successful by reason of industry and thoroughness, "the only qualities worth anything in the make-up of a young man." It is not only the young men, however, that are being drained away; what Professor Osler regards as a more serious loss is that of the young women. He had as a patient once a neurasthenic man of thirty or thereabouts whom he asked why he did not get married. "Because," was the reply, "all the girls I wanted have gone to the States." It appears that of 651 women in six of the great eastern hospitals in the States 196, or almost a third, are Canadians. To check this migration of possible mothers, Professor Osler suggested a tax on bachelors over twenty-five or twenty-six, or, as an alternative, an export tax of £20 on every girl leaving Canada. He admitted that she was worth more than that, a statement which was received with approval by his audience, who seemed to agree with him that she was worth £200, and that it would pay to give her family that amount to keep her at home. He went on to say that it is sane and reasonable of Canadians to think of themselves as a strong race; they are satisfactorily situated for the development of one strong in body. Rarely has a strong nation appeared elsewhere than in the north. The cold and rigor of winter are much to their advantage, and will produce a stronger type than any other on the continent. Waxing prophetic, Professor Osler foretells that in our generation by far the most virile nation will dwell north of the Great Lakes. The amalgamation and commingling of the heterogeneous elements of English, Irish and Scotch is, in his opinion, the best mixture the world had ever seen. If he had his way he would have an Act of Parliament passed that every fourth Upper Canadian should marry a French-Canadian girl, because in that way the future of the race would be assured. To grow a strong race mentally, elementary education should be fostered by well-equipped schools and teachers. It is not good for boys to be brought up under women; the Canadian people must pay better salaries, and make their teachers feel that they are doing useful and honorable work for their country, with a prospect of provision for age and for their families. Professor Osler holds that the most important thing is to grow a strong race morally, and that is the hardest of all. He does not think Canada immoral. Homicides are less frequent than in certain other countries, and drunkenness not so prevalent, though some of them with Scotch fathers might have a little tissue thirst. Illegitimacy is rare, and divorce is not common. Morally, the country has made a good start, but there is, he thinks, far too much evil speaking, lying and slandering in connection with political life. This is entirely superfluous and unnecessary. Young men in this atmosphere of slander and hostility towards opponents suffer great harm. Dr. Osler regards it as an infinitely worse vice than drunkenness. The only way to meet it is to deal with political opponents in an everyday Christian spirit, or, if not in the character of St. Paul's noble Christian, at least in that of Aristotle's true gentleman.

Correspondence.

GASTRO-ENTEROSTOMY.

Boston, Feb. 24, 1905.

Mr. Editor: On the 26th of January last, I published in the Journal a brief Preliminary Note with two cuts, describing a form of gastro-enterostomy which I advocate, when possible, and when the preferable Finney's pyloroplasty cannot be done.

The operation I described is not original; it has been done by many surgeons. I published it because I have come to believe in its efficacy, and incidentally for the sake of Mr. Aitken's beautiful illustrations which I had had made for another purpose.

In brief, the operation consists in (1) a posterior gastro-enterostomy with the long loop, (2) entero-enterostomy, (3) section of the afferent loop between the two anastomoses, — so far it is the well-known operation of Chaput, — and (4) section of the pylorus.

Since that publication of a month ago, the operation, as I discussed it, has been severely criticised on what must have appeared good grounds to the critics. Although I deprecate public disputation through the medical press, I am prompted in this instance to correct what appears to be a misapprehension of my previous statements.

I am told that the procedure I advocate is dangerous, rash, much more severe than the ordinary uncomplicated gastro-enterostomy; while my words, "that [step 4] adds nothing to the risks," are regarded as unsound and untrue. I admit at once that any form of gastro-enterostomy is a grave operation. The old simple forms are grave because of the danger of fatal vomiting in some cases, and in others because the patient's original symptoms recur, in which case it is found that he has been submitted vainly to the operation. Those are valid objections to the old operations, and because of such unsatisfactory results those operations have come into merited disfavor with many experienced surgeons as well as with internists. I am told that I am in error in what I advocate because, in endeavoring to obviate those old faults and objections, I have championed a procedure full of immediate operative danger. Step *two* is admitted to be good practice, but my offence is in steps *three* and *four*. That is to say, the two divisions of the gut add greatly to the risks.

I submit, on the contrary, that the operative risk in any gastro-enterostomy depends upon opening the organs and stitching them together in unusual positions. When once your new stomata are established however, I protest that subsequent sections of the gut do not add materially to the danger, provided always your patient is not already in shock. Such sections may be done rapidly between crushing clamps. The cut ends are turned in with a purse string, and leakage or subsequent disturbance at the site of section should never occur. Moreover, vicious circle vomiting is avoided and excellent symptomatic results are obtained.

I believe, sir, that it is a misconception of my position and a failure to appreciate where lies the true source of danger in these operations, which has led to the criticisms I have heard.

Very truly yours,

J. G. Mumford, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 18, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,521	459	23.34	21.56	3.09	.26	2.63
Chicago . .	1,990,750	630	149	20.79	27.13	.95	.32	—
Philadelphia	1,407,968	599	122	21.86	24.53	1.83	2.17	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	216	55	13.44	21.76	—	.92	.46
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	382,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	79	16	17.52	22.79	1.26	—	1.26
Boston . . .	617,950	223	45	30.17	23.76	1.34	.90	.90
Worcester . .	136,925	38	5	7.89	15.78	—	—	—
Fall River . .	119,349	62	35	12.90	22.28	—	1.61	—
Lowell . . .	104,402	36	8	13.88	16.67	—	—	—
Cambridge .	100,998	27	6	25.92	14.81	—	—	—
Lynn	73,875	31	10	—	29.03	—	—	—
Lawrence . .	72,348	28	7	7.14	28.57	—	—	—
Springfield .	72,020	17	2	17.64	23.53	—	—	—
Somerville .	70,413	17	1	17.64	17.64	—	—	—
New Bedford	68,863	34	9	14.70	26.47	—	2.94	—
Holyoke . . .	50,588	—	—	—	—	—	—	—
Brockton . . .	46,001	17	2	29.41	23.53	—	—	11.76
Newton . . .	39,310	4	2	—	—	—	—	—
Haverhill . .	39,061	10	3	10.00	30.00	—	—	—
Malden . . .	37,205	12	1	8.33	16.67	—	—	—
Salem	37,188	8	2	—	—	—	—	—
Chelsea . . .	36,499	15	2	6.67	26.67	—	—	—
Fitchburg . .	36,325	9	2	22.22	11.11	11.11	—	—
Taunton . . .	34,577	18	3	5.55	16.67	—	—	—
Everett . . .	30,209	6	1	16.67	—	—	—	—
North Adams	29,201	10	2	20.00	—	—	—	—
Quincy . . .	26,798	6	1	16.67	—	—	—	—
Gloucester .	26,121	7	1	—	—	—	—	—
Waltham . .	25,797	4	1	25.00	—	—	—	25.00
Brookline . .	23,576	5	—	—	20.00	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	—	—
Medford . .	21,956	7	2	—	14.30	—	—	—
Chicopee . .	21,692	5	2	20.00	20.00	—	—	—
Northampton	20,314	14	2	—	28.57	—	—	—
Beverly . . .	15,807	2	—	—	50.00	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	2	0	—	50.00	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	4	0	—	—	—	—	—
Newburyport	14,478	5	0	20.00	80.00	—	—	—
Woburn . . .	14,315	3	1	—	—	—	—	—
Melrose . . .	13,819	1	0	—	—	—	—	—
Westfield . .	13,809	5	—	20.00	20.00	—	20.00	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	7	1	—	14.30	—	—	—
Revere . . .	13,609	5	1	—	40.00	—	—	—
Framingham	12,974	9	1	11.11	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,294	3	2	66.67	—	—	—	66.67
Southbridge	11,716	6	1	66.67	—	—	—	16.67
Watertown .	11,575	2	0	—	—	—	—	—
Weymouth .	11,350	7	0	14.30	14.30	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,776; under five years of age, 995; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 768; acute lung disease 868, consumption 416, scarlet fever 30, whooping cough 16, cerebrospinal meningitis 50, smallpox 5, erysipelas 12, puerperal fever 17, measles 13, typhoid fever 26, diarrheal diseases 91, diphtheria and croup 69.

From whooping cough, New York 8, Chicago 3, Philadelphia 4, Boston 1. From scarlet fever, New York 20, Chicago 3, Philadelphia 6, Taunton 1. From cerebrospinal meningitis, New York 40, Baltimore 1, Providence 1, Boston 2, Brockton 2, Waltham 1, Gardner 2, Southbridge 1. From smallpox, New York 1, Chicago 4. From erysipelas, New York 7, Chicago 3, Providence 1, Boston 1. From typhoid fever, New York 4, Chicago 2, Philadelphia 13, Baltimore 2, Boston 2, Fall River, New Bedford and Westfield 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending Feb. 11, 1905, the death-rate was 17.4. Deaths reported 5,220; acute diseases of the respiratory organs (London) 229, whooping cough 110, diphtheria 72, measles 100, smallpox 3, scarlet fever 45.

The death-rate ranged from 8.1 in Hornsey to 29.8 in Stockton-on-Tees; London 17.6, West Ham 17.5, Brighton 20.1, Southampton 19.1, Plymouth 18.9, Bristol 15.7, Birmingham 16.5, Leicester 12.3, Nottingham 22.4, Birkenhead 18.9, Liverpool 19.9, Wigan 18.7, Bolton 19.3, Manchester 18.3, Salford 16.4, Halifax 14.9, Bradford 14.4, Leeds 16.1, Hull 19.4, Sheffield 16.5, Newcastle-on-Tyne 18.3, Cardiff 13.3, Rhondda 24.2, Merthyr Tydfil 28.2.

METEOROLOGICAL RECORD.

For the week ending February 18, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 2.00 P.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 2.00 P.M.	Velocity of wind. 8.00 P.M.	Weather* 8.00 A.M.	Weather* 8.00 P.M.	Rainfall in inches.
S.. 12	30.20	21	33	10	72	94	83	N	W	S E	4	12		C.	N.	.38
M. 13	29.42	26	40	12	95	51	73	S	W	W	5	18		O.	C.	.10
T.. 14	30.10	12	18	6	59	47	53	S	W	S W	12	15		C.	C.	0
W. 15	30.04	18	25	11	61	77	69	S	W	N W	5	11		O.	C.	T.
T.. 16	30.24	15	22	8	52	54	52	W		S W	14	12		C.	C.	0
F.. 17	30.21	27	38	16	62	52	57	S	W	S W	14	15		O.	O.	0
S.. 18	30.14	20	29	12	52	48	50	W		W	20	18		C.	C.	0
☞	30.01		29	11			62									.46

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY MEETINGS. — Boston Medical Library Meetings in conjunction with the Suffolk District Branch of The Massachusetts Medical Society. Program of the meeting for March 8, 1905, at 8.15 P.M., at the Library, 8, The Fenway, John Ware Hall. The Present State of Opinion Concerning Sewer Gas and its Effects: Prof. William T. Sedgwick of the Massachusetts Institute of Technology. Nine Years' Experience in the Treatment of Diphtheria with Antitoxin at the South Department of the Boston City Hospital: Dr. John H. McCollom. Discussion (5 minutes each): Drs. Rotch, Cheever, Folsom, Burrell, F. H. Williams and Watson.

GEORGE W. GAY,
FRED B. LUND,
ELLIOTT P. JOSLIN,
Committee on Medical and Social Meetings.

RECENT DEATHS.

MORTIMER WRIGHT SHAW, M.D., of New York died from pneumonia on Feb. 22, at the home of his mother in Middletown, N. Y. He was thirty-seven years of age and was graduated from the Long Island College Hospital in 1892.

ELIHU RUSSELL, M.D., of New York died on Feb. 19 from appendicitis. He was born in Jersey City, N. J., in 1864. He was graduated from Amhurst College in 1885 and from Bellevue Hospital Medical College in 1888. He was in the U. S. Marine Hospital service for five years before commencing practice in New York.

WILLIAM EDWARD GRIFFITHS, M.D., of Brooklyn, N. Y., died on Feb. 21. He was born in New York City in 1842, and was graduated from the College of Physcians and Surgeons in 1868. For several years he was in the service of the Brooklyn Board of Health, and at the time of his death was visiting surgeon to St. Mary's Hospital.

ALFRED L. SHAPLEIGH, M.D., a graduate of the Harvard Medical School in the year 1904, died recently in Shanghai, China. He was particularly interested in missionary work and, although but thirty-five years old at the time of his death, had had a wide experience.

BOOKS AND PAMPHLETS RECEIVED.

A Critic Answered. By Alfred Farlow. Reprint.

Physiological Economy in Nutrition with Special Reference to the Minimal Proteid Requirement of the Healthy Man. An Experimental Study. By Russell H. Chittenden, Ph.D., LL.D., Sc.D. New York: Frederick A. Stokes Co. 1904.

Poverty. By Robert Hunter. New York: TheMacmillan Company. 1904.

Aseptic Surgical Technique. By George H. Monks, M.D. Reprint.

Report of the Surgeon-General U. S. Navy to the Secretary of the Navy. 1904.

Original Articles.

A CLINICAL REPORT OF 75 CASES OF ARTHRITIS DEFORMANS (CHRONIC, NON-TUBERCULAR ARTHRITIS).

BY F. L. RICHARDSON, M.D., BOSTON,
Austin Teaching Fellow in Surgery for the Division of Surgery of the Medical School of Harvard University.

THE following clinical study of cases of arthritis deformans represents one of the preliminary steps in a study of that disease undertaken in the Surgical Laboratory of the Harvard Medical School. The pathological material obtained from the Long Island Hospital and from other sources is now being studied, and it is hoped to report the results of that investigation at a later time. The study of this pathological material has largely influenced me in grouping the cases as they are grouped in the following report.

The large number of cases of arthritis deformans at the Long Island Hospital (Boston) offers an admirable opportunity for observation of this affection. The following report is presented to complement a similar report by McCrae [1], [2] of Baltimore and following the excellent work of Goldthwait [3] and Painter [4] of Boston.

The classification introduced by Garrod [5] and those developed by many earlier writers (including Jaccoud [6] and lately by Pribram [7] as well as the one carefully used by Goldthwait and Painter [3] are all, though different, of value in defining the varieties and stages of the affection, but it was found difficult to apply the terminology of these authorities accurately to many of the chronic cases at the Long Island Hospital. The general term "Arthritis Deformans" first employed by Virchow, and used at the meeting of the American Medical Association by McCrae, Walsh, Skinner and Tinker, is therefore used in this report, as it does not assume either clinical or pathological distinctions which have not been accepted by all writers.

The cases here reported were seen at the Long Island Hospital during the past year. Statistics are given of various general factors which may explain the cause, or the course of the disease. In some cases where it seems desirable for interpretation of statistics of the disease, certain general statistics of the hospital are given.

Seventy-five cases were studied clinically, of which 74 were plainly one of the various types of arthritis deformans, including one case of "anchylosing arthritis" in an adult woman. There was one case of chronic arthritis due to gout, which, because of its clinical course, was considered during life as deforming arthritis. This case is reported here for comparison with the others because of the close analogy of the lesion with that of ordinary arthritis deformans.

Of the 74 cases of arthritis deformans, 26 were men and 48 women.

Nativity.	Arthritis Number.	Deformans Per cent.	Per cent of all cases in Hospital during the Year.
U. S.	21	31	53
Canada	9	13	8
Ireland	35	51	30
England	2		
Germany	1		
Sweden	1		
Unknown	6		

CONJUGAL CONDITION.

Seventeen cases were single and the remaining 58 cases were or had been married.

OCCUPATION.

Out Door: Laborer, 11; teamster and furniture mover, 4; carpenter, 2; painter, 3.

In Door: Boiler maker, 1; fur dresser, 1; clerk, 1; housework, 31; cook, 6; waste sorter, 1; laundry laundry, 5; sewing, 1; unknown, 8.

FAMILY HISTORY.

Owing to the social condition of the patients, no great reliance can be placed upon certain parts of the data relating to the family history and the past history of the cases.

In only 7 cases did the patient know of any "rheumatism" in the family.

PAST HISTORY.

In most of the cases no reliance could be placed on the history of the exanthemata, and therefore that part of the history is omitted.

Acute rheumatism. — Five cases gave a history of acute rheumatism. In 2 of these cases there is evidence of organic heart lesion.

Gonorrhea. — There were 14 men of whom in 9 cases the arthritis, clinically, was supposed to be of gonorrheal origin. There was also a distinct history of gonorrhea in 2 women in both of whom it was supposed to have given rise to arthritis. In all of these cases the arthritis began while there was yet some discharge.

Syphilis. — A history of the disease or of the characteristic symptoms was found in 2 men and 2 women.

	Age of Onset.		Present Age.	
	Men.	Women.	Men.	Women.
10–19	2	1	0	0
20–29	4	3	2	2
30–39	5	5	5	2
40–49	4	10	6	2
50–59	7	6	4	10
60–69	1	5	6	18
70–79	1	1	3	8
80–89	2	0	0	5
Unknown	2	15	0	0

Onset, first joint involved: Wrist and hand, 15; elbow, 1; shoulder, 10; spine, 2; hips, 1; knees, 25; ankles and feet, 6; more than one set of joints, 4; unknown, 10.

Onset, Character of: Acute, 16; sub-acute, 8; insidious, 35; unknown, 16.

By "acute" is meant a primary attack so severe that it causes the patient to go to bed and stay there for a number of days.

[1] Arthritis Deformans. Jour. of the Am. Med. Association, Jan. 2 1904, p. 1.
[2] Pathology and Etiology of Arthritis Deformans. Jour. of the Am. Med. Ass., Oct. 8, 1904, p. 1027.
[3] Differential Diagnosis and Treatment of the So-Called Rheumatoid Diseases. BOST. MED. AND SURG. JOUR., NOV. 17, 1904.
[4] Pathological Lesions of Rheumatoid Arthritis: BOST. MED. AND SURG. JOURN., Vol. cxlv, p. 593.
[5] Treatise on Rheumatism and Rheumatoid Arthritis. 1890.
[6] Sur une forme des rheum. chr., Clin. de la Char. 1874.
[7] Gelinkrheumatismus, 1902.

By "sub-acute" is meant an attack so severe that it prevents the patient from working, but not severe enough to keep the patient in bed.

By "insidious" is meant symptoms gradual in their onset, usually without any distinct beginning so far as the patient is aware.

BLOOD.

In 60% of the cases in which the blood was studied the per cent of hemoglobin (by the Tallquist scale) was between 70% and 80%, without any marked diminution in the number of erythrocytes. In many cases other causes, known to be the cause of diminished hemoglobin, were present.

URINE.

In one case the disease was associated with diabetes mellitus of a rather severe type in which the sugar could not be reduced below 4% with a strict diet. In several cases there was chronic nephritis. A large number of urines were examined for an excess of uric acid by the HCl method, but in no case was uric acid found markedly in excess, and in many cases it was found relatively diminished.

CLINICAL CLASSIFICATION.

Because of the great confusion of terms which have been used to describe different types of the disease, the cases in this article have been grouped for description in numbered classes.

In the present state of our knowledge it seems advisable to divide the cases of arthritis deformans into but two groups.

GROUP I. GENERAL CONSIDERATIONS.

The cases in this group are, for the most part, in relatively young people. The first attack of the disease is fairly frequently acute or sub-acute in its onset and not infrequently there is elevation of temperature and increase of the pulse rate. During the acute attack the patient usually suffers severe pain, even when the joint is not in motion, and any attempt to move the joint increases the pain markedly. There is swelling of the affected joint or joints, and not infrequently there is redness and increased surface temperature. The joint is tender to the touch. The character of the deformity is not exactly the same as in the cases in Group II. The joint shows a fusiform enlargement at first which, on palpation, does not appear to be due to an enlargement of the bone. Effusion in the joints is not uncommon. After the acute onset constitutional and most of the local symptoms disappear, but a certain amount of deformity or limitation of motion remains and the patient has recurrent, more or less acute, exacerbations at intervals of from a few weeks to two years. Frequently after numerous attacks there is a condition of apparent diminution in the size of the joint, and with this there is often a condition of hyperextension or flexion with marked limitation of motion, sometimes amounting to fixation. Usually there is not marked atrophy of the muscles except in the most marked cases. It is the first attack in this group of cases that most frequently is mistaken for acute or sub-acute articular rheumatism. There are certain points that should aid in the differentiation. In Group I the temperature is rarely above 102°, the tenderness is usually markedly less than in acute articular rheumatism, the inflammation does not jump from joint to joint, but may affect an increasing number of joints. When a joint has once been affected with this disease it is permanently injured, and usually there is some, even if but little, deformity remaining. The initial attack is usually of longer duration than in acute articular rheumatism, and recurrences at intervals of from a few weeks to two years are not uncommon, in fact they are to be predicted; or the progress may be continuous. After each recurrence the joint is left in a more deformed condition than after the previous attack, and usually a larger number of joints are affected at each attack. During the intervals the patients may be able to go about their usual occupation with but little discomfort or inconvenience. The pain in one of the acute attacks is sometimes relieved by salicylates, and this is one of the points that has led to the confusion of this condition with acute articular rheumatism. The salicylates do not tend to shorten the attack or to reduce the deformity. The disease not infrequently follows some infection, and of the infections, gonorrhea predisposes the most frequently to this condition. In cases arising from gonorrhea the tendency to an apparent decrease in the size of the joint is markedly less than in the other cases, and in fact there is usually an apparent increase in size, and this increase in size appears to be chiefly peri-articular.

GROUP I. STATISTICS.

In this group are 6 women and 12 men to which are added 2 more cases that appear in both groups. These two cases are preceded by the sign.*

	Age of Onset.		Present Age.	
	Men.	Women.	Men.	Women.
10–19	2	1	0	0
20–29	2	2	2	0
30–39	3 *1	1	4	3
40–49	3	0	4	0
50–59	1	0	2 *1	1
60–69	0	1	0	2
70–79	0	0	0	0 *1
Unknown	1	1 *1	0	0

Onset, First Joint Involved.	Men.	Women.
Feet	5	0
Knees	3	0
Hips	0	0
Spine	0	0
Shoulders	0	2
Elbows	1	0
Hands	3	3
Unknown	0	1

Onset, Character of	Men.	Women.
Acute	9	
Sub-acute	3	
Insidious	5	
Unknown	1	

In two of these cases the radial arteries are sclerotic, the patients being fifty and sixty-eight years of age.

In three cases of this group there is one joint or a single set of joints affected.

In only one case of this group is there a history of acute rheumatism.

GROUP II. GENERAL CONSIDERATIONS.

The characteristics of the cases of this group are an arthritis which shows a crippling of the affected joint with marked deformity of the articular surfaces with frequently a new formation of bone, usually most marked at the periphery of the joint. Cases belonging to this group usually are "physiologically old." In the advanced cases there is marked deformity, sometimes sub-luxation or dislocation; there is apparent formation of new bone with limitation of motion which in some cases amounts to immobilization of the joint. In some of the advanced cases there is marked muscular atrophy. Synovial fringes frequently are to be felt, especially in the knees and shoulders. In this group are placed the cases with the so-called Heberden's nodes and cases of spondylitis deformans. There are also a number of cases, commonest in old women, in which there are but few clinical signs of alteration in the bony or articular structures. These joints show some crepitus on motion, in the knee joints the patellæ may not be quite so easily moved as in the normal joint and there is some limitation of motion. The patient invariably complains that it hurts to move the joint and that there is loss of strength in the affected limb. The knees are the joints where this condition is most frequently found. The onset in these latter cases is always insidious and the patient may not be aware of the condition till some slight accident, which increases the symptoms for a time, draws attention to the joint.

The reasons for placing these milder cases in this group are that they show most of the characteristics of this group, *i. e.*, insidious onset without constitutional symptoms, disturbance of joint function, and in some cases slight new formation of peripheral bone or fringes, and they occur in patients who are "physiologically old." If any joint shows more advanced alteration the changes are of the more extreme type of this group already described in the first paragraph under Group II.

In general it will be found that those cases in which there is the most marked new formation of bone are those cases in which there is the most calcification of the arteries, *i. e.*, it appears that the same factors which predispose to the formation of calcified plates in the arteries may also predispose to the formation of new bone in and about the joints, and such other changes as are found in the cases of Group II. It is also notable that the majority of the cases in this group are physiologically older than the cases in Group I.

GROUP II. STATISTICS.

In this group are 56 cases of which 13 were in men and 43 in women. There were also 2 cases which showed the manifestations of both groups and in the tables these will be preceded by the sign *. Only a single joint or set of joints were affected in 13 cases, of these 6 were men and 7 women.

	Age of Onset. Men.	Women.	Present Age. Men.	Women.
10–19	0	1	0	0
20–29	2	2	0	2
30–39	1 *1	3	1	0
40–49	1	10	2	2
50–59	6	7	1 *1	10
60–69	1	4	6	16
70–79	1	1	3	6 *1
80–89	0	0	0	5
Unknown	1	13 *1	0	0

Onset, First Joint Involved.	Men.	Women.
Feet	0	1
Knees	6	16
Hips	1	0
Spine	3	0
Shoulders	3	7
Elbows	0	0
Hands	0	8

Onset, Character of.	
Acute	7
Sub-acute	5
Insidious	28
Unknown	14

The radial arteries were perceptibly sclerosed in 32 out of the 56 cases in this group.

Association of groups:

	Men.	Women.
Group I	12	5
Groups I and II	1	1
Group II	6	27
Heberden's Nodes	0	2
H. N. and Gr. I	0	0
H. N. and Gr. II	1	9
Spon. Def. and H. N.	1	0
Spon. Def. and Gr. I	0	0
Spon. Def. and Gr. II	4	1
Spon. Def. alone	1	0
Grs. I, II and H. N.	0	1
Gr. II, H. N. and Spon. Def.[§]	0	2

Because Heberden's nodes are a special class of manifestation of this group they will be considered separately. The condition is found most frequently in women. Out of the 15 cases showing this form of the disease 13 were in women. The onset is usually insidious and painless, though there is occasionally some pain at the beginning of the process. After the process is once well established there is little or no pain, and the only inconvenience is from the deformity.

It has been said by some authors that the presence of Heberden's nodes is rarely accompanied by other manifestations of arthritis deformans. In these cases that is not the fact, for out of 15 cases with Heberden's nodes in only 2 were Heberden's nodes the only manifestation of the condition. It has also been said that the association of Heberden's nodes and cancer is not uncommon. In none of the cases here reported is there any indication of cancer. In one case (see appendix, Case 03–37) the immediate cause for the enlargement of the joint appeared to be trauma, but whether the slight trauma would have been sufficient without other contributing causes it is impossible to say.

[§] Key: H. N. — Heberden's Nodes. Spon. Def. — Spondylitis Deformans.

Chronic arthritis due to gout.—This case was not seen in the first attack, and when seen the patient did not present any of the typical signs or symptoms of gout. The case was regarded as belonging to Group II, and not until the autopsy was it discovered that it was a case of gout. The particular interest in this case is the fact that the clinical appearances were exactly like those commonly seen in arthritis deformans. It quite possibly may be that other cases of gout may be mistaken for arthritis deformans. A full report of this case will be found in the appendix (Case 03–45).

One case classified under Group I deserves especial mention. This case is reported in full in the appendix (Case 03–16). This case is of a very severe type. The case has been progressive from the beginning, without remissions, although at times the pain is less severe than at others. During the warm weather the pain is less, but itching of the skin is very severe, while during cold weather itching is less severe and pain in the joints is much worse. Neurological examination threw no light on the condition. Another feature of interest in this case is the atrophy of the skin and hair which is well shown in the painting of the hand. The irregular flushing and atrophy of the skin, and the muscular twitching suggested the possibility of nervous origin of the joint lesions in this case but proof of that, or any other hypothesis, is wanting at present.

TREATMENT.

The most important treatment for both classes of cases is good hygiene, both general and local. Good, easily digested, nourishing food in sufficient quantity is essential. It does not with our present knowledge seem advisable to cut off any particular class of food stuffs. For local hygiene, an avoidance of all strain, exposure to high or low temperatures and especially to too sudden changes in temperature, is to be strongly advised. Residence in a damp locality is said to predispose to diseases of the joints. Trauma in some cases appears to play an important part as an exciting cause and should therefore be avoided. The presence of a septic or infectious process in some part of the body sometimes increases joint symptoms.

Drugs appear to have little or no effect on the course of the disease. Occasionally there is a case belonging to Group II where the use of one of the salicylates causes a decrease in the amount of pain.

LOCAL TREATMENT.

It is often advisable to treat the acute cases with rest, either complete or partial. It is hardly ever advisable to put the joint in plaster, because it prevents the application of other forms of local treatment.

In most cases increasing the circulation to the affected joint appears to be the best form of local treatment. Of the methods for increasing the circulation to the affected joint massage is by far the best when the joint is not too tender. The patient feels much better after this treatment, and not infrequently there is a marked increase in the amount of motion that may be obtained after massage. The pain is also greatly relieved. Next to massage for increasing the circulation the Bier "passive congestion" treatment is probably the best method. Baking with hot dry sand or with hot dry air (200° to 350° F.) for short periods every day or every other day is found to be of great benefit. In some cases it seems an advantage to alternate the Bier passive congestion treatment with some form of baking. Most observers agree that the use of wet baths is not to be recommended. Dry cupping in the region of the joint is sometimes of benefit in relieving the pain. Counter-irritants (iodine or tinct. of cantharides) are also sometimes of benefit in selected cases. Cases of spondylitis deformans are best treated with either plaster or leather jackets giving slight correction with fixation till the referred or local pains have disappeared.

SUMMARY.

The analogy, which Bradford has suggested, between arthritis deformans and arteriosclerosis appears to be a very close one. In arteriosclerosis the causes to which the disease has been ascribed are innumerable and the manifestations may be widely varied. The condition may be widely distributed, or narrowly circumscribed; there may be a condition of hyperplasia only or there may be ulceration, calcification or even formation of true bone. Because of these numerous manifestations it seems to me that it cannot be said that we are dealing with many diseases. I have come to this conclusion, not only from these clinical cases, but also from the study of many pathological specimens from cases of arthritis deformans. Why in one case there is new formation of bone and in another absorption is at present as much unknown as are the varied conditions that give rise to the disease. That the disease often is the result of some general alteration in the body metabolism seems possible.

APPENDIX.

The histories of the following cases are appended as illustration cases:

CASE 03–3, GROUP I.

Woman; white; widow; age thirty-three years; occupation, housework. Entered June 25, 1902.

F. H.: Good.

P. H.: Healthy up to eight years ago when she had erysipelas in head and face. Operated in the Boston City Hospital, in 1901 (uterus curetted).

P. I.: About four years ago the patient began to have pains in the little finger of the left hand. The finger was poulticed, but without any improvement. The joint was swollen, red and shiny and has remained large ever since. She had another attack after the operation at the Boston City Hospital. Patient was confined to bed for a week before her entrance here on account of pain and tenderness of her joints.

P. E.: Heart, lungs and abdomen negative.

Extremities: Knee jerks lively. No ankle clonus

GROUP I

Case 03-3

Case 03-3

X-ray of hand shown in preceding figure. Showing thickening of capsule and periarticular structure of middle joint of middle finger.

GROUP I

Case 03-16

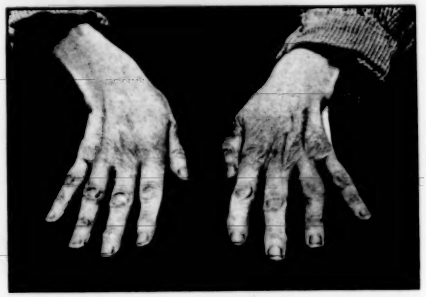
Case 03-16

Case 03-45

Lower end of femur showing cystic deposits in artic

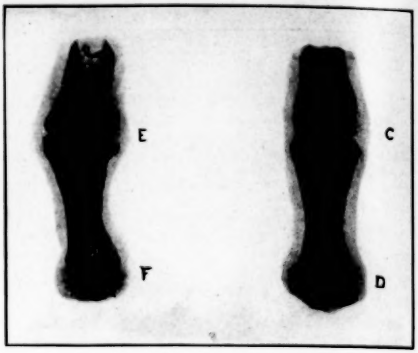
GROUP II

CASE 03-37



The joints are lettered to correspond with the lettering on the x-ray.

CASE 03-37



X-ray of joints *C*, *D*, *E* and *F* made post-mortem.

GROUP II

CASE 03-26

CASE 03-26

CASE 03-26

or Babinski. Some swelling over the left olecranon with disability of the left elbow. Swelling, redness and pain over the metatarsal bones on dorsum of the right foot. Swelling of some of the smaller joints of the hand.

Patient was treated by rest in bed, tonics, and applications of oil of glautheria and bandages locally.

July 16, 1902. Patient shows improvement in general condition, but joints are still quite troublesome and process in the hands is more acute.

August 20, 1902. Patient is up and about the wards and doing light work. She does not complain of pain and is evidently much improved.

November 21, 1902. Uterus was curetted on account of persistent hemorrhage, and a small tumor removed from her neck.

Patient continued to improve after this and was discharged March 19, 1903.

August 14, 1903. Readmitted.

P. I.: Three weeks after the patient left the hospital, she had another exacerbation of pain in her joints that lasted eight or nine days. With this exception she has been well until two weeks ago, when her ankles became swollen and very painful. After this the left wrist became troublesome. The pain lasted for a while in one joint and then progressed to another. Patient has also had diarrhea.

P. E.: Eyes, mouth and lungs negative.

Pulse regular, of good volume and high tension. Radial arteries not sclerotic

Heart: Impulse in the fifth interspace, 12 cm. to the left of the median line. A blowing systolic murmur is heard over the aortic region and transmitted into the neck.

Abdomen slightly tender, otherwise negative.

Left hand: The middle joint of the little finger is markedly enlarged and this joint cannot be extended beyond 150°, but flexion is almost normal, and there is only very slight pain on motion. All the other joints of this hand appear to be normal.

Right hand: The middle joint of the middle finger is enlarged and on the dorsum is a small, distended sac the size of half a pea. This joint allows of extension to 150° and flexion almost to a right angle. The terminal joint of the thumb on this hand is also somewhat enlarged but motion in this joint is normal.

There is slight swelling about the left wrist, especially marked on the ulnar side. There is no tenderness or limitation of motion.

The right elbow allows of extension to 135°, and flexion to 45°. Rotation is normal. There is pain on rapid motion and in the extremes of motion. There is slight swelling about the joint but no tenderness or crepitus.

Left ankle is slightly tender to the touch and is somewhat swollen. There is some pain on motion with crepitus and slight muscular spasm. All other joints are apparently normal.

Tactile and thermal sensation over the affected and unaffected joints is apparently normal.

Urine: Dark, acid; albumin, 0.1%; sugar, 0; bile pigments, 0. Sediment consists of much blood and pus and squamous cells. No renal elements.

Blood: Reds, 3,884,000. Whites, 6,300. Hemaglobin, 70%.

The patient gradually recovered from this acute exacerbation. Pain disappeared from the joints, but swelling and limitation of motion persisted. Discharged Oct. 31, 1903.

This case illustrates the characteristics of cases of Group II in a young woman in whom the disease progressed by recurrent acute exacerbations. These exacerbations in themselves look much like acute articular rheumatism, but they always leave the patient with a deformed joint. As may be seen from the x-ray, the swelling is not due to increased size of the bone, but to some change in the structure of the capsule which causes an increased shadow density.

Case 03-16, Group I, Ankylosing Arthritis.

Woman; white; widow; age, thirty-two years; occupation, housework; entered July, 1898.

F. H.: Negative.

P. H.: Measles, pertussis and mumps during childhood. Has had four children and one miscarriage. Since the death of her husband has worked very hard to support her two surviving children.

P. I.: The first trouble that the patient had was stiffness of the neck and shoulders which came on seven or eight years ago and lasted only about twenty-four hours. At that time her attending physician said that she had muscular rheumatism. Shortly after this first attack the patient had trouble with her knee and then the condition progressed from joint to joint, till at present many of her joints are involved. At times there is less discomfort in some particular joint, but this slight remission would be but temporary and all the joints tend to grow progressively worse. There has always been more pain in the left side than in the right.

P. E.: Well developed and nourished.

Heart and lungs negative.

Knuckles distorted, toes crumpled, right knee flexed, muscles flabby and painful. Varicose ulcer of left leg. Menstra normal. Urine negative. Patient was given arsenic and strychnia. Patient is able to sit up daily, but there is always considerable pain, increased by movements.

October, 1900. Patient is unable to leave her bed and the slightest attempt to move her causes great pain. Itching of the skin is very severe. At times the patient has pain about the heart radiating into the shoulder and arm for which she is given nitroglycerin grs. 1-100. The general condition of the patient is always good. She eats and digests food well and is well nourished. At times the patient has more or less intestinal disturbance, diarrhea or constipation. The patient is now unable to feed herself or attend to herself in the slightest way. Sleeps fairly well, but at times the pain keeps her awake and she requires morphia. The condition in the joints is growing progressively worse and the deformity and contraction is increasing.

March, 1902. Patient has pain in all of her joints except the spine. Pain is worse on the left side. She requires morphine or trional to get sleep, also a cathartic. Even the weight of the bedclothes is unbearable.

June, 1904. Heart and lungs negative. Pressure on any part of the body causes exquisite pain as does the movement of any of her joints. The joints of the jaw, and of the ribs with the spine are apparently but little affected. All the other joints of the body are diseased and any attempt at active or passive motion causes the greatest pain, and even without movements there is considerable pain, often enough to keep the patient awake at night unless she gets an opiate. There is contraction of the flexor tendons of all the joints except the toes and the tendons of the terminal joints of the fingers and thumb which are hyperextended. The patient is well nourished with a tendency to obesity. The skin over the hands is very thin, shiny and atrophic. The hairs on this skin are fine, curly and come from a raised papilla. At times the skin is very hyperemic and at other times it is pale. Itching of the skin is a very prominent symptom in hot weather when the pain in the joints

is less severe. In the cold weather the itching is less marked and the pain in the joints is more marked. The skin over the face, neck, and upper part of the chest shows hard edema, is painful to the touch and at times is hyperemic. Light pressure on the skin over these parts is painful, but there is no alteration of the sensibility to touch or temperature. The only movements that the patient can make are movements of the jaw in eating soft solids, movements of the chest in breathing, rotation of the head, and a few degrees of motion in the left thumb and elbow by which the patient rings a bell for an attendant.

Urine: Twenty-four hours' amount, 1,900 cc.; specific gravity, 1.010; alkaline; albumin, slightest possible trace; sugar, 0; urea 14.74 gms. in twenty-four hours; uric acid not increased; sediment considerable. The sediment consists of a large amount of triple phosphate crystals, leucocytes and a few squamous cells. No renal elements found.

Blood: Reds, 6,592,000. Whites, 8,500.

During the past year the Bier passive congestion treatment has been applied to the hand without any marked change. Aspirin was used without any effect whatever. Several things have been used to relieve the itching, but they either have given no relief whatever or have relieved only temporarily. The condition in the joints is growing progressively worse without any other marked impairment in health.

CASE 03–37, GROUP II.

Woman; white; single; age, seventy-four years; occupation, dress trimming maker; entered Oct. 22, 1903.

F. H.: Negative.

P. H.: Patient had measles, whooping cough and scarlet fever when a child. Menopause occurred a number of years ago.

P. I.: Three years ago the patient fell down stairs and broke her left hip. She had hospital treatment but since then has not been able to walk. She gets about in a wheel chair. She is obliged to pass water three or four times in the night.

P. E.: Fairly developed; somewhat emaciated. Color anemic. Eye reflexes normal. Pulse regular, of normal rate and tension. Radial arteries considerably thickened.

Lungs hyper-resonant, except at the right upper back where there is considerable dullness; breathing sounds are diminished and expiration is prolonged. No râles heard.

Abdomen not abnormal. Liver area diminished.

Prolapse of the rectum and hemorrhoids.

Extremities: Knee jerk present and diminished on the right; not obtained on the left. Plantar reflexes present; no Babinski or ankle clonus.

Hands: Nodular enlargement of all the terminal joints (Heberden's nodes). This enlargement is most marked on the fore and middle fingers. There is very little limitation of motion in these joints and they do not cause the patient any discomfort, except occasional stiffness. On the left hand the middle joints of the middle and ring fingers are enlarged, most marked on the ring finger. Patient says that in her occupation she has held heavy steel needles against these joints. The enlargement of these joints is apparently bony. There is 30° permanent flexion of the middle joint of the ring finger and this finger cannot be forcibly straightened. The phalangeal joints of thumb appear to be somewhat enlarged, but there is no limitation of motion. On the right hand there is some tendency for the middle phalangeal joints to be somewhat enlarged, but there is no limitation of motion. Marked atrophy of the intrinsic muscles of the hands.

Elbows apparently normal

Hips: Distance from the right anterior superior spine of the ilium to the internal malleolus is 1.5 cm. more than on the left. The trochanter on the left is 0.5. cm. higher than on the right and can be grasped between the fingers. All movements of the left hip are somewhat limited, but without pain.

Knees are alike. There is some fine crepitus on motion, but in all other respects they are apparently normal. Feet show shoe deformity, but otherwise are normal. Slight edema of the lower legs.

Patient is up in her chair daily and appears to suffer no pain. There is no noticeable change in the condition of her joints. About the middle of December, she began to fail rapidly in general health and died Dec. 28, 1903.

This case illustrates the occurrence of nodular enlargement of the phalangeal joints (Heberden's or Haygarth's nodes) with other manifestations of the disease in other joints. The case is also interesting because it appears that one of the contributing causes of the nodes may have been the slight trauma from the use of the knitting needles continued over a long period.

CASE 03–26, GROUP II.

Man; white; married; age fifty-eight years; occupation, type founder; entered Feb. 11, 1903.

F. H.: Negative.

P. H.: Patient says that he had children's diseases; scarlet fever at the age of twenty years and gonorrhea and bubo at about the same time. He had a fever at about the age of thirty-two years, which laid him up for about three months. At this time he says that his feet were swollen and tender. Patient denies symptoms of lead poisoning.

Habits: Patient has been a steady, but not an excessive, drinker of ale and whiskey.

P. I.: In September, 1900, patient noticed that his right knee was tender. The knee became swollen and painful on walking. He was treated at various places, but the knee got worse and other joints became involved. Patient was not able to work for over a year and then only for a few months. He had to stop because of the involvement of more joints.

P. E.: Heart and lungs normal.

Radial arteries sclerotic.

Liver from the lower border of the third rib to 2¾ inches below the costal margin in the nipple line, edge smooth and sharp.

Spleen, palpable. Otherwise, abdomen negative.

Extremities: Right hand shows enlargement of the metacarpo-phalangeal joint of the thumb. There is a fair amount of motion but with some motions there is crepitus and pain. The terminal joint of the little finger is a baseball joint. There is marked atrophy of the intrinsic muscles of the hand. Left hand: thumb in about the same condition as on the right. The middle joint of the forefinger shows a fusiform enlargement. This joint allows of motion from a straight line to a right angle. There is marked atrophy of the intrinsic muscles of the hand.

Right wrist shows some limitation of motion in all directions. There is diffuse enlargement of the joint which appears to be bony. The left is in about the same condition as the right.

Elbows: There is enlargement of both elbows which appears to be bony, and there is some pain and occasional crepitus on motion, but no tenderness. Motion allowed from 145° to complete flexion in both elbows.

Both shoulders are involved, the right one more than the left. Motion is somewhat limited and is accompanied by crepitus.

Spine shows general stiffening. At times there is considerable pain in the cervical region.

Hips: On palpation there appears to be some thickening about the trochanters, but there is little if any limitation of motion and no pain.

Knees: Right can be extended to about 145°, and flexed to a little less than a right angle. Hamstring tendons are tense when the leg is extended. There is considerable pain most of the time in both knees. Circumference of the right knee at the middle of the patella with the leg extended is 35.6 cm.; of the left 36.9 cm. The left can be extended to 160° and flexed to about a right angle. On palpation of both knees, numerous spherical bodies may be felt slipping under the fingers. These bodies are most numerous and easily felt at the lower and inner part of the patella when the leg is extended. They feel as if they were about 3 or 4 mm. in diameter. Both knees show marked crepitus on motion.

Ankles: Both are somewhat stiff and swell at night, but there is no pain and no apparent deformity. Feet show shoe deformity.

The muscular system of the extremities is greatly atrophied. Patient gets about with difficulty by the aid of crutches and at times, *i. e.*, on cold or damp days when the pain is worse, he is not able to get about at all. There is considerable tremor of the hands and arms, but this tremor does not appear to be either increased or decreased by intention.

Urine: Twenty-four-hour amount 1,240 cc.; specific gravity, 1.012; acid; albumin, slightest possible trace; sugar, 0; urea, 17.26 gm. in twenty-four hours; uric acid not increased. Microscopic: Many large and small hyaline and finely granular casts. Few leucocytes and renal cells.

Blood: Reds, 4,744,000; whites, 7,800; hemoglobin, 75%.

Patient was treated by rubbing the knees with liniment and he was given extra diet.

Dec. 1, 1903. The Bier passive congestion treatment has been used on the right knee for a month with marked improvement. The patient now calls that his "good" knee whereas it formerly was the most troublesome. On examination this knee allows of a few degrees more extension than formerly, and the diameter is 35.0 cm., otherwise there is no marked change in the condition of the knee. Other joints remain as above noted. Bier passive congestion method started on the left knee also.

Jan. 1, 1904. Bier passive congestion treatment has been omitted from the left leg because of increased distention of the synovial sacs. Massage is continued and at intervals dry cups and baking with hot air were used on this knee, but without marked improvement.

In addition to the other treatment, forcible extension of the knee was tried and there was marked increase in the ability to straighten the knees. At times this forcible extension had to be omitted on account of pain. The patient is not able to walk with any more ease, but this is probably due to the marked loss of muscular power which has been quite marked.

In this case the invasion of the disease has been more rapid than is generally seen, otherwise the case may be considered as a typical case of this group.

CASE 03-45, ARTHRITIS DUE TO GOUT.

Woman; white; married; age seventy-seven years; occupation, housework; entered Aug. 7, 1903.

F. H.: Negative.

P. H.: Patient has had five children. Has been troubled with "rheumatism" at times for the last twenty years., but so far as she can remember has had no other sickness. Denies venereal.

Habits: Drinks two or three pints of beer a day and two bowls of tea.

P. I.: For the last three years the "rheumatism" in her knees and ankles has been so bad that the patient has been unable to walk. At times she has pain and swelling in her hands. No cough; bowels regular.

P. E.: Well developed; somewhat obese.

Tongue deviates to the left on being protruded; non-tremulous.

Heart is somewhat enlarged to the right and there is a slight systolic murmur heard at the apex. Radial arteries are sclerotic.

Extremities: Knee jerk present on the left, but not obtained on the right on account of stiffness.

Hands: There is no marked deformity, but the patient is unable to close the fingers tightly or completely extend them, the permanent flexion being but a few degrees. Motions at the wrists are somewhat limited, but there is no apparent deformity, pain, or tenderness.

Elbows: Left normal. Motion in the right elbow is not as free as in the left and the arm cannot be extended beyond 160°.

Shoulders: There is some limitation of motion in all directions, but there is no pain, tenderness or deformity.

Right knee allows of motion between 60° and 160°. Left knee allows of normal amount of flexion and extension. Motion in both knees is accompanied by marked, fine crepitus. No deformity can be made out.

Ankles: Motion and appearance of both is normal.

The patient complains but little and appears to suffer no pain. There was no marked change in patient's condition till May, 1904, when she became weaker, gradually became comatose and died.

Post-mortem examination of the right knee shows a joint that is apparently normal except for the articular cartilage. The articular surface of the condyles of the femur shows considerable pitting which is most marked on the inner condyle. These depressions are irregular in size and shape, and are shallow and smooth, showing no change in color. Over some portions of the cartilage which were not eroded there is an irregular deposit of chalky white material, which could be removed only with difficulty, leaving a surface resembling the eroded areas above described. The articular surface of the patella showed a similar deposit to a more marked degree, but on the patella the erosions are not as marked. Both the deposit and the erosions are less marked on the tibia. There is some lipping of the inner side of the femur and more markedly of the head of the tibia. Fluid and semilunar cartilages are normal in appearance. Microscopic examination of the deposit shows it to consist of urate crystals.

THE COMPLEMENTAL RELATIONS OF GLYCURONIC AND ETHEREAL SULPHURIC ACIDS AND THEIR PAIRLINGS IN AUTO-INTOXICATION, TYPHOID FEVER, AND CANCER.*

BY A. E. AUSTIN, M.D., AND E. W. BARRON, M.D., BOSTON.

AMONG urines which reduce Fehling's solution, but which do not contain sugar, are found those which contain large amounts of uric acid, and those which contain glycuronates. The urine

* Read at the Pathological Section of the Pan-American Congress.

which contains the latter can be readily distinguished by the following characteristics:

It reduces Fehling's solution slowly requiring nearly five minutes for its reduction and does not contain the usual red suboxide of copper, but a greenish-yellow product which may be hydrated suboxide. Such a urine has a left-turning power. in the polariscope and does not ferment. Its reducing power is greater than its turning power and it gives the Tollens' reaction with phloroglucin.

This substance, glycuronic acid, has never been found free by any one except Paul Mayer. He claims that when 20 gm., at least, be injected into a rabbit, the urine contains a right-turning substance which reduces, and does not ferment, and upon this bases his opinion that the free acid may be eliminated. Ordinarily, however, we find this acid induced either by the ingestion of some aromatic substance which, by pairing with the glycuronic acid, prevents it from further oxidation, or by the ordinary aromatic bodies produced in the intestines. These artificial pairing substances may be camphor, chloral, thymol, borneol, antifebrin or morphine and innumerable others, the recounting of which would not add to the interest of the subject, and would only show a reduplication of the principal ones already given. Ordinarily the pairing bodies which are found in the urine are such substances as are formed in the intestine, indoxyl, skatoxyl, phenol, cresol, etc., the products of albuminoid decomposition. To such an extent are these present, even under normal conditions, that Mayer and Neuberg, by using enormous quantities, at least 50 liters of normal urine, have been able to show that 40 mgm. of glycuronic acid per liter is present. Of these, only the indoxyl produces a reducing agent, while the phenol compound does not reduce.

As to the source of glycuronic acid, two theories have been advanced; first, that it comes from the oxidation of dextrose which is not carried to its farthest limit, carbon dioxide, and which, presumably from the greater difficulty of oxidation of a paired glycuronate, is held at that stage of the process. This theory is the one maintained by Mayer, who bases his opinion upon the following grounds: that when the rabbit has been made glycogen free by starvation and camphor is given, only a small portion of the glycuronic acid can be found in the urine, but if, at the same time, dextrose is freely given, this acid is very largely increased. On the other hand, it is not impossible that this acid may be produced from the glycoproteid or even from ordinary serum-albumin, that is, from the carbohydrate portion which almost every albumin contains. Leowi attempts to demonstrate this by producing phloridzin diabetes in a dog, and by giving camphor, on the principle that if the glycuronic acid is formed from the dextrose, there will be an increase in the glycuronate and a corresponding diminution in the amount of dextrose eliminated. He found, however, that while the glycuronate was present in fairly large amounts, there was no decrease in the amount of glucose, and from this he concludes that the acid comes from albumin. A case under my own observation proves the same. A young man passed, on several days, approximately, 5,000 cc. of urine, which usually contained 5% of dextrose. His food during the entire period consisted of beef, veal, lettuce, spinach, three or four eggs, ham, and one roll daily, weighing 30 gm. On one day on which this observation was made, the amount of urine was 4,680 cc. The polariscopic reading showed 4.5% of dextrose, while the reduction showed 5.2%. After complete fermentation the urine was markedly levogyrate and there was isolated from this 2.456 gm. of a glycuronate. Here we can only conclude that not only the greater part of the dextrose, but also the glycuronate must have come from the albumin taken, or from the man's own tissues.

The place in which this acid is formed is still in doubt. We have the experiments of Glaessner and Embden to show that phenol sulphate, an analogous body, is formed in the liver and presumably the glycuronate is formed in the same organ. But it has been shown that when the liver is largely destroyed by arsenuretted hydrogen the formation of glycuronic acid in a normal amount still continues. Furthermore, it has been shown that in injuries to muscles, through fractured bones or bruises, there is a glycosuria produced which may be accompanied, presumably, by the glycuronates, but we are still lacking actual evidence of this accompaniment.

Mayer further shows that glycuronic acid may come from a faulty oxidation caused by dyspnea and has actually found this substance, as he claims, largely increased, both by tying the pharynx in animals, and also in cases of asthma. Wohlgemuth has also adduced an interesting example of this in dyspnea from cocaine poisoning, in which this acid was so largely increased that he was able to isolate in crystalline form a large amount of cresol glycuronate. Another interesting fact with reference to this case was the fact that there was no increase in the pairing body. We have another close connection between dextrose and this acid in the fact that sometimes one, sometimes the other, sometimes both, occur under certain conditions, like poisoning with morphine, chloral, etc. Carbon monoxide produces also, as is well known from accidental poisonings with water gas, a glycosuria of long standing, but no efforts have as yet been made to determine whether the glycuronates are increased under these conditions.

We now come to another body which seems to have an analogous relation to aromatic bodies, that is, sulphuric acid. Sulphuric acid, as you well know, exists in two forms, united with such bases as sodium and potash, or is paired with as great a multitude of aromatic bodies as glycuronic acid has been found to pair with. They both have the power, apparently, of rendering innocuous many poisonous substances, such as phenol, morphine, etc., and when a certain amount of any of these poisonous substances is given, it unites itself to both.

Naturally, the following questions then arise: Why does not all the aromatic body pair with sulphuric acid? or does it do this to the exclusion of the so-called preformed sulphate, and the excess only unite with glycuronic? or is the latter fully saturated, and does the excess only unite with the sulphuric? In the last case, necessarily, the glycuronic acid must be increased at the expense of the ethereal sulphate. In the first case the sulphur must exist only in the form of ethereal sulphate, without reference to the glycuronate. And last, the question arises, If such bodies pair with both, what proportion pairs with each acid?

Three classes of cases were taken in order to illustrate this very interesting problem. The first class included cases of auto-intoxication, in which there is noted an increase of indol and skatol, either from intestinal obstructions or from accumulations of pus.

The second class includes typhoid fever, with temperatures, usually, of 39.2° C., on a milk diet, where, according to authorities, the oxidation of glucose is always very limited.

The third case includes one case of cancer of the liver where indol has always been shown to be increased. Such cases also offer a very good opportunity to determine whether an increase in glycuronic acid is necessarily associated with an increase in the pairing body, and whether, when the pairing body is present in normal amount, it may have a greater affinity for glycuronic than for sulphuric acid.

The urines of all these were first freed from the glycuronates, then the remainder used for separating the ethereal sulphate in one portion and the preformed sulphate in another. The glycuronates and the ethereal sulphates were split, and all four of these factors were quantitatively estimated. The results were very curious. In the first group in 66% of the cases less indoxyl united with the glycuronic acid than with the sulphuric, while in the remaining cases the reverse was true. There was always a surplus of sulphuric acid in the form of preformed sulphates, though this amount was very much diminished in the first group, with reference to the second, amounting to only one fourth as much.

In the typhoid fever, or second group, there was in 50% of the cases more indoxyl united to glycuronic acid than to sulphuric acid, and in 50% the reverse was true. There was always an enormous amount of preformed sulphate, amounting often to 80% of the total sulphuric acid present.

In the cancer of the liver, the greater part of the indoxyl was united to sulphuric acid. In no case was the glycuronate formed, apparently at the expense of the ethereal sulphate, and in no case was all the sulphur used up in the production of the latter. In typhoid fever and cancer the very large amount of sulphuric acid is probably accounted for by the rapid breaking down of the albuminous tissue of the body, whereby sulphur is set free. It is very plainly evident that the glycuronic acid is first saturated and the excess of the aromatic body unites with the sulphuric. Hence, it seems safe to conclude that the formation of the glycuronate is due to the presence of the pairing body and not to deficiency of oxidation. The increase of the glycuronate is apparently not necessarily due to the increase of the pairing body, and why there should be more glycuronic acid available under certain circumstances than under others still remains a problem.

Since the discovery by Salkowski that there exists in the liver an enzyme which he calls oxydase, my suggestion is that possibly the pairing body unites only with that dextrose which oxidized in the liver, leaving the vastly larger part of the carbohydrates which exist in the muscles to be oxidized to the higher products, oxalic acid and carbon dioxide.

Mayer offers in explanation the theory that only a portion of the dextrose passes through the stage of glycuronic acid, offering no explanation for the greater or less amount, unless it be his supposed diminished oxidation, a fact that is not yet fully established. Mayer has also found that when glycuronic acid was injected into rabbits, oxalic acid was found in much larger amounts than in the normal rabbit. From this he draws the conclusion that there is a progressive stage of oxidation in the body, from dextrose to the final carbon dioxide. He also found that when glycuronic acid was mixed with macerated liver substance a corresponding increase of oxalic took place. But this, however, does not necessarily follow, because one of the authors of this paper has shown that oxalic acid may also arise from glycocol, which naturally is also extremely abundant in the liver. Had Mayer shown a diminution in the glycuronic acid thus employed, the evidence would be much more positive. There is, however, as shown by others, and observed by the author, a marked association in diabetes, of dextrose, glycuronic and oxalic acids, in the urine. This is particularly true in those cases in which the glycosuria is due to the inability of the liver cells to convert dextrose to glycogen, and we may conclude that the liver certainly has something to do with this formation of glycuronic acid.

To return to the results of the experiments,—we may remark that skatoxyl was never separated from indoxyl, and where the latter is mentioned, both are included.

In group I, we find that the first case contained three times as much indoxyl as the third, and nearly one half as much glycuronic acid.

In the second group, 2 and 3 contained twice as much indoxyl as the others, and respectively four and three times as much glycuronic acid, while both contained less of the latter than the fourth. Hence it is evident that glycuronic acid is not increased in proportion to the increase of indoxyl.

Another fact to which reference has been made is that the limit of sugar absorption is very much impaired in fever. It has been demonstrated by Strauss that if 100 gm. of dextrose be given a fever patient, a large percentage of the same is

eliminated in the urine. From this we naturally infer that when several cases, both of fever and other pathological conditions, are compared, the amount of glycuronic acid would be much larger in the fever cases than in the others, if it were due to faulty oxidation. Here we find, however, that the largest amount of this acid, .14 of 1%, is found in auto-intoxication, while the amount found in the case of cancer exceeded all these highest amounts.

Blumenthal and Wolf, upon examining the urine of typhoid fever, also came to the conclusion that there was no relation between the heights of fever and the amount of glycuronic acid, or between the amount of aromatic bodies and the latter.

Our own experience has shown further, that there was not enough of the aromatic body to satisfy the demands of the glycuronic acid found. We must conclude then, that there are other unknown pairlings, or that there may be a combination of this acid and urea, but of these combinations very little is known.

Our experience also conforms closely to that of Bial, that some glycuronates are much more readily split than others, which may be further evidence of the presence of these unknown pairing substances. For instance, in the case of diabetes to which reference has already been made, cooking the glycuronate ten hours with 2% sulphuric acid in the autoclave, with a pressure of five atmospheres, and a temperature of 140, the splitting was not complete, and 14% of the total remained unseparated. This is remarkable, because ordinarily indoxyl and phenol can be readily split off from the acid with mere cooking during a period of two hours with 1% sulphuric acid.

To briefly capitulate the results of these experiments, we may say: First, that aromatic bodies unite both with ethereal sulphuric acid and glycuronic acid, which apparently have a complemental relation to each other, but that the former is always first saturated before union commences with the second. The glycuronic acid apparently varies very decidedly in amount, due to causes of which we have at present no exact knowledge, but it is not necessarily associated with the increase of the pairing body, nor with the diminution of oxidation. Furthermore, there is always present an excess of sulphuric acid beyond the demands of the pairing body.

DANGERS FROM THE "X-RAY ATMOSPHERE" TO THE OPERATOR. THEIR PREVENTION.

BY H. W. VAN ALLEN, M.D., SPRINGFIELD, MASS.,
Electro-therapeutist to the Mercy and Springfield Hospitals and St. Luke's Sanitarium.

PHYSICIANS and other workers with the x-ray have come to know the harmful effect of this form of energy when applied in the ordinary way for too long a period or at too short a distance. It is only, however, of late that we are beginning to understand the effect produced upon persons continuously exposed to the so-called "x-ray atmosphere." This subject is well worthy of our study, for while the patient is being benefited by the ray the operator is being harmed by the continuous action of the distance-weakened ray. That the x-ray has become a permanent factor in the medical economy of the age is beyond dispute. For many skin derangements including malignant growths it is almost a certain cure. These cases universally recover unless the adjacent tissues have been involved. In the deeper malignant growths it inhibits progress in all, and cures some. Radiography has become of such a help to the surgeon that he will not do without it. All this being true, it is evident that we must continue to use the x-ray, but how avoid its evil effects?

While it has been known for some time that the x-ray applied to the testicle would stop the production of the spermatozoa, Dr. F. Tilden Brown's recent announcement that extensive workers in this line are without spermatozoa, but otherwise as vigorous sexually as ever, has caused concern; as if the x-ray atmosphere is powerful enough to produce so tangible effect as this, is it not liable to produce permanent changes in the deeper and more vital organs.

Bearing on this subject I report seven selected cases rayed some time ago which have been recently examined. All were rayed in the genital region, more or less dermatitis being produced. None of them were malignant, all are in good general health now and subjectively they are sexually normal: 1. Twelve treatments, last being four months ago. Spermatozoa now normal. (2) Twelve treatments, last being one year ago. Spermatozoa normal. (3) Thirty-five treatments, last being five months ago. Spermatozoa absent. Never had venereal disease. Has children. Sexual function seems to him normal. Age 38. (4) Ten treatments, one year ago. Spermatozoa now normal. (5) Fifteen treatments, four months ago. Spermatozoa absent. Had unilateral orchitis in youth. No children. Age 56. (6) An x-ray tube maker, who through change of occupation has not been exposed for six months. No spermatozoa. No venereal disease. No children. Age 42. (7) Forty-five treatments. Last one being fourteen months ago. No venereal disease. Has children. Age 40. Spermatozoa absent.

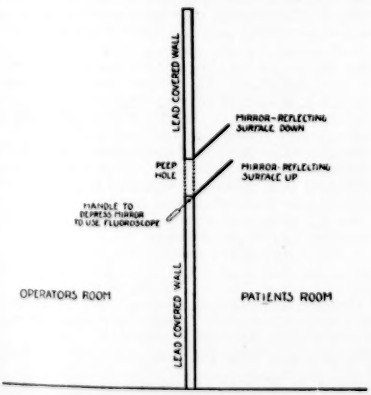
In looking at these cases (and the same point is carried out in others) those in which the spermatozoa are still absent are the ones treated the longest and not the ones in which the dermatitis was marked. In cases 1, 2 and 4 a very decided dermatitis was produced and treatment discontinued, while in cases 3 and 7 there was never much reaction. That it is the continued mild exposure is also borne out by Case 6 as well as by those of Dr. Brown's. We also know it is not the burning effect in malignant growths that is effective, for cases recover better when there is scarcely any dermatitis, but the treatment has been less powerful and made to cover

a longer period. We can deduce from all these facts that it is the long-continued exposure that stops cell proliferation.

Stimulated by the above suggestive facts, comparisons have been made and certain other symptoms have been found to be almost universally present in x-ray workers of more or less experience. The skin and its appendages are first to suffer. The nails and hair are brittle and of slow growth. The skin itself is dry and of a yellowish hue so peculiar that it is almost characteristic. Many have dry seborrhea. Indigestion is present, especially of the intestinal kind. These men complain of lack of ability to concentrate their thoughts for any length of time and are drowsy although many suffer from inability to have continuous restful sleep at night. The disposition is somewhat irritable. These operators complain of an unnatural sensation of cold. Radiographs in some instances of the thinner parts of the body show a premature sclerotic condition of the arteries.

A little study of these symptoms show them to be those of premature senility. The x-ray inhibits cell production by reducing the blood supply through degeneration of the arterioles. It is in this way that epithelioma yield to its influence. The abundant blood supply needed for its growth is cut off and recovery takes place. In the same way many of the symptoms complained of by the operators are explained.

These facts being true how are we to retain the aid of this useful ally and avoid injury to the operator? He must be entirely removed from the x-ray atmosphere. How is this to be done?



In preparing our x-ray rooms in the future the entire apparatus except the tube should be in one room and in an adjoining room the tube and couch for the patient. The wall between should be covered with sheet lead not less than $\frac{1}{32}$ inch in thickness. Through this, of course, would come the two wires from the exciting machine to the tube. Also in the wall must be a peep-hole to judge the tube through. This hole can be protected or not but it is much safer to be, and this may be done by means of glass; not plate glass as is often claimed, but the glass from which cut glass articles are made. This glass as made by some makers contains as much as 20% of lead. Another way of protecting this hole is by means of two mirrors set facing each other at an angle from the upright of 45°; one covering the opening and the other above it. The non-reflectible ray is prevented from striking the operator by the silver-covered mirror, but the operator can see all that transpires in the other room by the double reflection of the ordinary light. The mirror in front of the opening can by a handle be depressed and a fluoroscope used to judge the tube and the character of light it is giving off.

Many of us, however, already have rooms prepared in which the patient and machine must be together. I have obviated the difficulty by removing my switches, rheostats, interrupters and ammeter from the operating room, leaving the machine there. The spark-gaps are easily worked by means of fish lines which go through screw eyes in the ceiling and in the partition through glass tubing bent down at right angles on the operator's side of the wall. The handles attached to the lines should weigh about the same as the part to be worked on the machine. In this way they will balance and thus will stay in any position. On the static the sliding rods are kept way out and a rod laid across back of the large brass balls, one end of which can be raised as above described.

In practice the plan works admirably. The patients see the reason for it and do not object; one saying, "If a doctor took half a dose of drugs with each patient we see how soon the doctor would be sick." This is just what we do, and in treating a number of patients the small dose taken with each is in the aggregate dangerous.

The only apparent objection to the above plan is that it does away with fluoroscopy. The sooner this happens I think the better. The fluoroscope overlooks everything but the decided abnormalities. It is a treacherous thing. Gross lesions can be detected by other methods with less trouble, but the slight deviations from normal are overlooked, while had a plate been made they would have been seen. In a radiograph we have "accumulated vision;" a record and something that can be studied at will by several. As a record they are invaluble not only as a protection to the physician, but for comparison as the case goes on. The time is almost here when in large cities the surgeon will not be judged to have taken all the required caution in a case of fracture unless a radiograph has been taken. The only place where fluoroscopy may be of value is in the movable organs, and here the field can be cut down to a very small one when cases that can be better diagnosed by other simpler methods are taken out. It is safe in these few cases to proceed in the old way, but let the examination be as rapid as possible.

Now that we have come to know more of the remote effects of the ray it behooves us to live up to our knowledge. One operator injured will cause many timid patients to hesitate to avail themselves of the benefits to be derived from this new and effective method.

Massachusetts General Hospital.

CLINICAL MEETING.

AT the meeting held January, 1905, the following papers were presented:

SARCOMA OF THE TONSIL.

BY J. COLLINS WARREN, M.D.

The case was a woman thirty-three years old, with a tumor of the right tonsil about the size of a fist. The growth was of three years' duration, but had grown more rapidly during the last six months. She entered the hospital for operation Dec. 29, 1903. The operation was performed on Jan. 5, 1904. The method adopted is the one I usually employ to reach the fauces or the base of the tongue. An incision was made from the outer angle of the mouth vertically downward to the edge of the chin, whence it was directed backward at a sharp angle reaching to the level of the external auditory meatus. The cheek being separated from the lower jaw and held back with a tenaculum, a blunt dissector rapidly frees the lower inner surface of the horizontal portion of the jaw from the soft parts. The bone is then divided a short distance in front of the ascending ramus with cutting forceps working in a groove made with a saw. Single hooks fastened into the cut ends of the bones separate the fragments widely by dislocating the heads of jaw from their sockets. (See Fig. 1.) In the present

FIG. 1. — Dr. Warren's method of approaching all tumors in the rear of mouth and pharynx.

case the tumor was found on inspection to be closely attached to the thyroid cartilage. It was not difficult, however, to shell it out from above, but its connection with the larynx necessitated a removal of the epiglottis and a portion of the glottis on the right side. The larynx was so much loosened from its connections by these incisions that it had to be stitched to an opening in the wound and thus made fast to the edges of skin in the anterior portion of the wound in the neck. The fragments of the jaw were wired together and the wound closed with drainage from the floor of the mouth. (Fig. 2.)

FIG. 2. — Shows lines of incision and drainage.

The patient made a good recovery and left the hospital Feb. 18. On June 13, a fragment of necrosed bone was removed from the neighborhood of the wire suture, — the bone having firmly united. On Nov. 7, the patient came again to the hospital to have the opening in the neck closed. This was about one and one-half inches in length, and during phonation the vocal cords were exposed and could be seen in motion close to the surface. The edges of the wound were refreshed under cocaine anesthesia and two rows of sutures taken — one of catgut for the mucous membrane and one of silkworm gut for the skin. The wound healed promptly by first intention. There had been some leakage through this opening during deglutition, but it had not caused a spasm of the glottis although deglutition was not easy unless pressure was made against the opening. After the wound had healed, deglutition was performed without difficulty. The patient's health appears to be all that can be desired and an inspection of the fauces shows that there has been no recurrence.

The following is a report of the examination of the tumor by Dr. W. F. Whitney:

A soft, fragmentary tumor mass, half the size of a fist, to one portion of which the muscle was adherent, and to another a bit of thyroid cartilage.

Microscopic examination showed small round cells separated by very fine stroma of connective tissue, with here and there cells in division.

Small round celled sarcoma.

Dr. A. A. Mackay of Manchester, N. H., reports to me that the post-operative treatment consisted in the Coley serum treatment for four weeks, which was abandoned owing to objections on part of patient. X-ray treatment was given at first, daily for one week, then every other day for a week, then twice a week for two weeks. The patient was then exhibited at the meeting and found to be in good health, with no recurrence, one year after operation.

A METHOD OF RHINOPLASTY ILLUSTRATED BY PLASTIC OPERATION FOR RODENT ULCER ON THE FACE.

BY E. A. CODMAN, M.D.

IN the BOSTON MEDICAL AND SURGICAL JOURNAL for Jan. 21, 1904, appeared a lecture on Epithelioma by Dr. J. C. Warren. The case which is here presented serves as another instance to illustrate the correctness of his conclusions. Dr. Warren gives a well deserved criticism of the recent enthusiasm for the x-ray treatment of epithelioma, rodent ulcer and kindred forms of malignant disease. The following is a quotation from his article: "The x-ray therapeutist should, therefore, make himself thoroughly familiar with the more advanced and malignant phases of rodent ulcer if he wishes to make an intelligent selection of cases for treatment. There are one or two cases under this treatment shown you this morning which would be better treated by the knife. In such cases the dread of the knife should be overcome and the patient be prevented from yielding to his instinct to lean towards the more popular therapy. There are others, however, which show clearly the great advantage which we possess in the x-ray treatment. There are those cases in which the disease is superficial and spreading over a large surface, and those where ulcers are multiple and on prominent portions of the face or closely grouped together as so to necessitate the extirpation of a large piece of the skin. In private practice where all such ailments are attended to in their early stages, I think that the large majority should be treated by excision and that the x-rays should be reserved for exceptional cases only. The x-ray treatment is tedious and expensive, and a severe trial to the strength of nervous and elderly people, who must be prepared to go out in all weathers for a considerable length of time. Some portions of the diseased growth must be allowed to continue in its course from twelve to fifteen months before it yields to the ray. During such a long period of time it might pass from the benign to the malignant stage and then be beyond the pale of surgery. I have seen many such cases dangerously near the border line and feel that a note of warning is necessary to physicians who yield too readily to the popular demand for x-ray therapy."

My experience with x-ray work makes me heartily agree with Dr. Warren's conclusions, and it seems to me that it is not inappropriate to reiterate his warning to the profession in regard to this subject. Even though I have had a number of apparent successes from simple x-ray treatment in cases of epithelioma and rodent ulcer, there have been others which I have supposed to be cured, which have returned and necessitated operation later. I believe as I always have believed,[1] and have told each patient that I have treated with the x-ray, that operation is, in most cases, advisable, and that the x-ray should only be used in those cases in which the patient positively refuses an operation, or in which interference is contra-indicated from some other good and sufficient reason. In such a case as the one herewith reported, while I believe a cure with the x-ray is occasionally possible, I think that a really radical operation is far more advisable.

On the other hand, I think that perhaps Dr. Warren overstates the tediousness and danger of the x-ray treatment, for in some cases in a few weeks success is achieved. There is also something to be said in favor of the x-ray in both ante- and post-operative treatment. Nevertheless, I believe that even now many cases in which operation should be insisted upon are being treated by the x-ray.

FIG. 1. — The appearance of the patient on May 31, 1904, before operation. The portions of skin included in the dotted lines were excised.

The patient is a small, fairly well-developed woman, fifty-nine years of age. She has always been well except for the rodent ulcer on her face. Twenty years ago she noticed a pimple on the upper part of the front of the nose; shortly after it became ulcerated and began to discharge. For the first twelve years it grew very slowly, but in the past eight years has grown faster. It was operated on seven years ago in Fall River and again four years ago in England. Each time, immediately after the operation, the ulcer has become worse than before. There has been no pain until about two months ago when sharp darting pains in the ulcer occurred at irregular intervals. She did not think she had lost weight, but her appearance was decidedly cachectic.

For the six months previous to the time that I saw her she had been under treatment with the x-ray in Fall River. Exposures were said to have been made every other day from June, 1903, to December, 1903; after that twice a week up to May, 1904. There had been but slight improvement.

Examination: There was nothing abnormal found in the heart, lungs, abdomen or kidneys. As shown

[1] Johns Hopkins Hospital Bulletin, Vol. xiv, No. 146, p. 121. May, 1903.

in the accompanying photograph there was an ulcer situated on her nose which had destroyed the most of the nose except one half of the tip and the right nostril. In connection with this ulcer there were two smaller ulcers involving the inner canthi of both eyes. That on the right side had destroyed portions of the upper and lower lid and that on the left side was beginning to invade the lids. The bridge of the nose between the eyebrows was broadened by the infiltration of

FIG. 2. — The patient as seen on Jan. 14, 1905. The lettering corresponds with the lettering in the diagrams below. The lower angles of the incisions show on each side of the outline of the jaw as little projections of skin, points (*d*) and (*k*). The fold lying between (*g*) and (*h*) is due merely to a crease in the flap, not to a scar. Notice the change in the shape of the mouth as compared to Fig. 1, showing that the slack in the tissue of the cheek has been taken up. Since the skin over the malar bone is less mobile than the portions about the mouth and cheek, the scar draws up toward point (*h*) instead of allowing the corners of the mouth to fall naturally. On the other side in a similar way point (*b*) is drawn up since it is sewed to the more fixed skin over the right malar bone. The action of the orbicularis palpebrarum on both sides is not interfered with so that the patient can close her eyes perfectly. When she wears glasses the scars are much less conspicuous and are certainly no worse than seen in the photograph.

cancerous tissue beneath the skin. The ulcer in the nose itself exposed and involved a portion of the nasal septum and the nasal process of the right superior maxilla. The edges of the ulcer were raised and indurated so that the disease extended considerably further beneath the skin than is shown in the photograph.

Operation, June 2, 1904. The patient was placed on her back with the chest raised and head hanging slightly backward. The posterior nares were plugged with gauze. A cautery point was introduced into the ulcer and the septum divided behind the seat of the disease. The mucous membrane on the turbinate bones and the nasal process of the upper jaw was also divided with the cautery. An incision was then made down to the bone and completely surrounding all the diseased area together with a liberal margin. This incision of necessity removed the inner half or more of both eyelids on the right side and the inner third of both eyelids on the left and extended higher on the forehead in the median line than the supra-orbital ridge. Nothing was left of the nose except a half of the very tip and the rim of the right nostril. The incision was carried to the bone even in the orbit on both sides, the conjunctiva being included as far as where it was reflected on the eyeball. Although the hemorrhage from this incision was at first tremendous, it was controlled entirely by pressure, no attempt being made to apply hemostatics. The soft parts which were thus included in the circle of incision were pushed from the bone with a periosteal elevator, except in certain regions where the growth came very near the bone; in these regions the bone was freely chiseled away. This involved removing nearly the whole of the anterior half of the septum, the nasal bones, the lachrymal bones, the nasal processes of the superior maxilla and the anterior walls of the frontal sinus, portions of the turbinate bones and portions of the anterior ethmoidal cells; thus in the end a pyramidal piece of tissue was removed, with its base formed by the nose, by the brow between the eyebrows and by the inner canthi, and its apex by portions of the anterior part of the ethmoid bone. When this mass was removed the whole field was thoroughly cleansed with salt solution and the cautery again applied to the bleeding points inside the nose and those portions which were considered in any way suspicious in regard to extension of the disease. Several polyps were also removed with the cautery. When the field was thus cleared the right nostril (which was dangling freely without any support since the septum had been removed), the cheek, the brows and lids and the other soft parts retracted from the center of the wound, leaving the eyeballs exposed without any covering, and what remained of the septum and turbinate bones visible back to the palate. The retraction of the tissues towards the periphery of the face was so great

FIG. 3. — The formation of the flap on the right side. When the spiral flap outlined in the figure is rotated, point (*b*) is sutured to the more firmly attached skin over the malar bone at (*y*); this causes a reduplication of the flap in the line (*c–z*) in (Fig. 4)) which would stand out near the angle of the nose as shown in Fig. 2. A part of this projecting fold was excised at the second operation. On the opposite side this very reduplication due to the twisting of the flap helps to form the nostril.

that it seemed impossible to arrange any flaps which would cover the defect. To do this, however, the following method was adopted. A spiral incision was carried down the cheek on to the neck below the angle

of the jaw, as shown in the accompanying diagram. The flap thus formed on each side was uncoiled and the parts marked *a*, *b*, *c* were carried to the positions shown in the diagram. The flaps were so thoroughly freed that no tension was caused on the stitches. By rolling the corner of the flap on the left, a new nostril

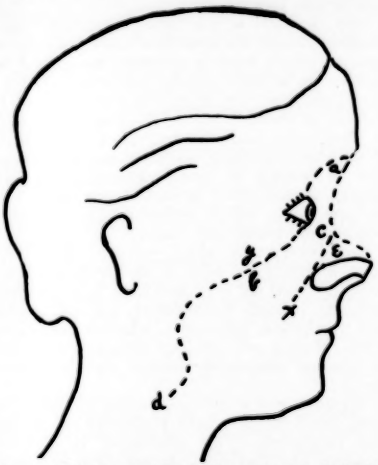


Fig. 4. — When the spiral flap has been rotated to the forehead a defect in the cheek is left between (*b*) and (*d*), Fig. 3. The closure of this forms a single line (*b*–*d*) which takes somewhat the form shown in the diagram (Fig. 4) owing to the greater elasticity of the tissue on the side toward the chin. This is easily demonstrated by the fact that one cannot pull the tissues overlying the malar bone and parotid region downward, but can pull the cheek and corner of the mouth upward. Below the edges of the jaw, however, the tension is very little on either side.

was made and what remained of the lids was sutured to the flaps in such a way that the eyeballs were covered. The dead space beneath these flaps was drained by three cigarette drains, two in the nostrils and the other in the right naso-labial fold. No dressing was applied and the plugging in the posterior nares was not removed until some hours later.

Owing to the hemorrhage, the patient was in a critical condition during the afternoon and evening and required salt infusion and stimulation, but she reacted well and was fairly comfortable on the following day. To my surprise almost a perfect first intention occurred and the wound healed nicely with the exception of the remains of the right eyelids which in about two weeks parted from their stitches and retracted outwards, leaving the cornea exposed. Owing to this the cornea was damaged and a small ulceration formed on it which ultimately badly damaged the sight in the right eye. Dr. Haskell of the Eye and Ear Infirmary kindly saw the case in consultation with me, and on the first of July the patient was transferred to the Eye and Ear Infirmary with her wounds nearly healed, but her right eye being still in a very critical condition. Under his skilful treatment the ulcer of the cornea healed, and on July 26 she was again transferred to the Massachusetts General Hospital to have a minor plastic operation done to perfect the healing of the right lids.

At this time the remains of the right eyelids were free so that they did not come together at the inner canthus so as to enable them to close and protect the eye from injury. There still existed a small granulating area near the inner canthus of the left eye also.

Besides these two places, there was a point where the flap over the right side of the face was puckered, which caused an ugly elevation, and near by it a small sinus leading into the interior of the nose. On July 27, by small plastic operations, I was able to remedy these defects and, suspecting recurrence in the small granulating area, I removed it and closed the gap with stitches. Primary healing followed.

Dr. Channing Simmons has given the following report of the small piece removed at this operation: "Microscopical examination showed granulation tissue in which were many small solid masses of epithelial cells. On the border the section was covered by a piece of epidermis which showed a tendency to form epithelial ingrowths.

Diagnosis: Squamous cell Carcinoma.

The patient was discharged from the hospital on Aug. 8 with instructions to continue x-ray treatment over the former seat of the ulcer. Since then she has had four exposures. She has kindly consented to allow me to show her here to-night. I think I may claim that her appearance, while not distinctly beautiful, is still improved as compared to her appearance shown in the photograph taken before the operation. There is no recurrence of the disease as yet, and the patient feels satisfied with her appearance. If she desired it, a good deal of improvement might still be made by turning in the corner of the left nostril and excising portions of the scar.

The damage to her right eye has resulted in

Fig. 5. — Attention is called to the fact that *the spiral on this side is the reverse* of that on the right, in other words, the direction of the pedicle is exactly the reverse. This allows the flap to be carried on to the nostril instead of on to the forehead. The resulting scar, as on the opposite side, forms one line from (*h*) to (*k*) while the pedicle of the flap is (*h*–*o*). The incision below the eye to the point (*o*) may be necessary to give greater freedom to the flap.

partial blindness in that eye. I am sure that this could have been avoided if I had been wise enough to have consulted Dr. Haskell as to the proper treatment immediately after the operation.

I desire particularly to call attention to the

method of using a spiral incision in the flabby part of the cheeks to obtain the flaps to cover the defect. The chief point is that the flaps can be made long enough to reach to distant parts of the face without producing tension on the stitches — which is the *sina qua non* of success in plastic surgery. The flaps must take only the skin and subcutaneous tissue for deep incision would damage the branches of the facial nerve and Steno's duct. Yet the flaps must take all the subcutaneous tissue possible, for in their new position their under surface is necessarily left raw and cannot obtain its nourishment from underlying parts.

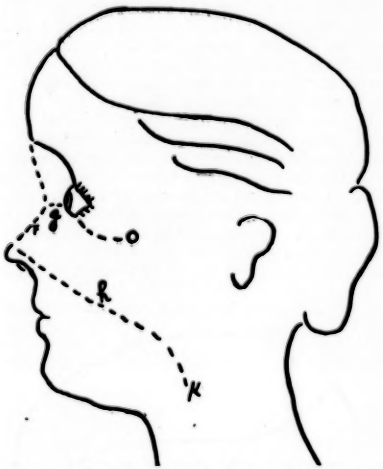


Fig. 6. — Shows the position of the scar on the left side. Owing to the sharp anterior edge of the malar bone a furrow forms in the flap between (*g*) and (*h*) corresponding to the naso-labial fold. This is shown in Fig. 2. (*F*) should lie on the bridge of the nose and (*e*) curves over to form the right nostril and is shown in Fig. 4.

A somewhat annoying result of the operation has been that since the lachrymal ducts were entirely removed the patient has to use her handkerchief frequently to keep her tears from running down her face.

It was through the kindness of Dr. W. B. Conant that I was able to operate on this case in his service last summer.

In the accompanying plates an effort has been made by diagrams to show the method of formation of the flaps in this case. While it is seldom necessary to close as large a defect as was made by the operation in this case, this same method might be used to repair defects in any portion of the nose, since this case shows that it is possible to carry flaps formed in this manner to any part of the nose. It is doubtful whether similar spiral flaps could be thus formed in any other portion of the body, but the skin of the face permits it because of its great arte'ial blood supply. In this case the flaps did well from the first. It is obvious that in males the presence of the beard would be a decided disadvantage.

THE USE AND VALUE OF MECHANICAL THERAPEUTICS.

BY M. BOEHM, M.D.

In accordance with the invitation of the committee, I take the liberty of presenting to you the following paper on the use and the value of mechanical therapeutics.

The elements of mechanic treatment — gymnastics, passive motions and massage — are not new, and their value is generally recognized, but the means we now employ are new. I refer to the apparatus built after the indications of Dr. Zander, a Swedish physician, who is still living at Stockholm, and who has spent his life in the development of these machines and in the scientific perfecting of mechano-therapeutics. The apparatus has been improved by others, and we use some other appliances not Zander's, besides, of course, our hands.

The question in which you are undoubtedly most interested is this: Does mechano-therapy bring us anything new; and if so, is its assurance valuable enough to warrant the construction and purchase of apparatus, which is very expensive? Would not the long established methods of manual treatment answer all the requirements?

Before I give a definite answer to these questions, I will explain briefly what we call mechanical treatment. This treatment is threefold, namely: (1) The most perfect form of medical gymnastics. (2) The most perfect form of passive motion. (3) The supplementing of the hand by apparatus in applying massage.

Gymnastics, up to recent times, has meant simply free exercises. The advantages accruing from the employment of apparatus are, (*a*) the possibility of focusing the treatment upon any particular group of muscles, and (*b*) the possibility of exact dosage in exercise. We give gymnastic exercises with the assistance of "resisting" apparatus, specially constructed for this purpose. This apparatus is the foremost feature of the Zander treatment, and makes mechanical therapeutics really scientific.

The same is true of passive motions. They had always been given by hand. In certain cases this may be sufficient, but it is easily understood that it has serious shortcomings. It is often painful, lacks steadiness and power, and is sometimes useless, because insufficient to relax the spasm of the muscles. An apparatus especially constructed for this purpose avoids all these disadvantages.

The efficiency of Zander's apparatus for passive motion is so great that it compares favorably with manipulation under ether. There are cases where good results are obtained by gradual extension of the joints, instead of "*brisement forcé*." In these cases we avoid the ether, and the improvement which we gain is permanent, for after treatment we are able to accomplish by active motion what we gained previously through passive.

Regarding the third advantage of Zander's

apparatus, the supplementing of manual massage by mechanical appliances, we know that from many points of view the hand is inadequate, gets easily tired and is never as reliable as an apparatus. To avoid these shortcomings, the forms of apparatus that give vibration and percussion have been invented. But please remember that it is not at all our purpose to supplant, but only to supplement, manual massage by apparatus.

The applicability of our method is manifold. It may be the essential part of treatment; in other cases it is employed in connection with other methods.

In the group of surgical affections benefited by this treatment we find the fractures and their sequelæ, such as stiffness and atrophy, which are especially fit to be treated by our method; also contusions, sprains, contractures and adhesions after sepses, etc.

From the group of orthopedic diseases which we can help I will quote deformities of the spine, "functional back," habitual scoliosis, rheumatic affections of the muscles, the sequelæ of rheumatism and infectious arthritis; also atrophic and hypertrophic arthritis to a certain extent.

Among nervous diseases we treat peripheral and spinal paralysis, where *all* that can be done on a physiological basis is obtained through mechanical treatment in the easiest and quickest way. Good results have been reached also in spastic paralysis. Hemiplegia and cerebral paralysis in children, as long as they are in the state of primary contracture, are very favorable cases for mechano-therapeutics. Our treatment in cases of neurasthenia and hysteria is also often helpful, partly through its psychic influence.

Among diseases of internal organs we treat especially heart troubles. Much can be done to support and to improve the compensation. We find in the work done in this field by Zander's apparatus a distinct resemblance to the Oertel treatment. The respiratory gymnastics performed by the Zander apparatus enables us to combat adhesions of the pleura and those formed after pneumonia. Obesity and constipation are also benefited.

You may be surprised by the number and diversity of the diseases treated by the mechanical method, but you must not forget that in many cases the treatment is symptomatic. We control not simply one set of influences, but a great variety of remedies that can all be applied through apparatus.

Our method may meet with the objection that it is applied often in cases where we have no sufficient theoretical justification. But against this objection I urge first: Since our method is still a comparatively new one, its scientific justification has not yet been thoroughly worked out. Secondly, that in a method based only upon practical experience, practice must always precede theory. But no one has any right, on this account, to call our treatment an unscientific one.

Mechano-therapy has been widely used in Europe. In Germany, alone, there were, in 1901, fifty-eight different institutions furnished with a complete set of Zander apparatus, besides a large number of smaller establishments furnished with the apparatus of other systems, such as the Herz, the Krukenberg and the Thilo.

Every German hospital has, according to its means, a larger or smaller department for mechanical treatment. Almost every watering place has its mechano-therapeutic institution. Those at Nauheim and Baden-Baden are well known. The Universities of Berlin and Vienna have each a chair of mechano-therapy.

In view of these facts it is astonishing that mechanical treatment scientifically applied is so rare in the United States. Only six establishments in the States are furnished with Zander apparatus, and our science is often generalized and abused in the most absurd manner. This fact is the explanation of the universal mistrust with which the new treatment is often received by the American physician. Our new department at the hospital should go far to dispel this distust.

I hope I shall have occasion, during the winter, to show you at these meetings some results of mechanical treatment scientifically applied, and I hope to convince you that the new method is really a valuable one.

DISCUSSION.

Dr. J. J. Putnam: I have followed this work so far as I have been able, with a great deal of interest. I have, myself, tried a good many of the pieces of apparatus, partly as an observer and partly as a patient, and certainly found them very excellent. A good many of the patients who used formerly to come to the Nervous Department now make their way to the Orthopedic room, so that Dr. Goldthwait can speak of them better than I. I think that the treatment is given better by means of this apparatus than by any other mechanical treatment that I know, or better, at least, than any that is within the reach of most patients. Even in the neurasthenic cases, where the treatment must be empirical, its use has certainly done much good. The general air of cheerfulness in the room, and the sight of the other people apparently improving, contribute very much to giving a sense of confidence. Patients who have gone there from Ward G and from the Out-Patient Department have been benefited. It is certainly true that the apparatus for percussion, for example, and the opportunity for all sorts of balancing movements by means of the remarkable camel-hump movement are very striking indeed, and if anything in that line can do good to constipation, as I think it can, that should.

Dr. J. E. Goldthwait: What has been demonstrated most clearly is that mechanical treatment of this sort permits of more accuracy than can be obtained in any other way. The number of patients there treated every day is quite large, more than could be handled by manual treatment, which would mean a large number of people, and the standard set by these machines is better than the standard which would be set by the average masseur whom the hospital could employ. A large number of patients who formerly came here and were treated in an unsatisfactory way are now sent there, with improvement in their general and local conditions. Dr. Böhm's basis is a safe one, as he endeavors to have a pathological basis for his treatment in every case, and to sift out empirically

the most favorable cases, instead of feeling that every case will be benefited by his treatment. He examines the cases, puts some aside and encourages others.

NON-TUBERCULOUS DISEASE OF THE SACRO-ILIAC JOINT.

BY J. E. GOLDTHWAIT, M.D.

I WISH to show a patient and demonstrate some anatomical preparations, showing that under normal conditions the sacro-iliac articulations are true joints, and that in them, both in men and in women, there is definite motion. The motion which is demonstrated on the anatomical preparation is upon a transverse axis drawn about midway through the body of the sacrum, and consists of a forward and back tilting.

It is without question true, as the result of clinical observation and as the result of the pathological specimens shown, that the sacro-iliac articulations are subject to disease the same as other joints, and the patient shown illustrated this, having a hypertrophic arthritic process in both the lower spine and one sacro-iliac articulation.

As the result of the clinical study it is undoubtedly true that under certain conditions, either as the result of injury which may come to either sex, or in women as the result of pregnancy, the amount of motion may be considerably increased and lead to great instability in such use of the body as would occasion strain upon those parts.

A brace was shown designed by Dr. R. B. Osgood, for the especial purpose of limiting the motion in the sacro-iliac articulations.

DISCUSSION.

DR. R. C. CABOT: Do any cases formerly called "lumbago" come under this new disease?

DR. GOLDTHWAIT: It explains a great many cases of lumbago in which we do not find any lumbar rigidity.

DR. J. J. PUTNAM: Is the pain localized in the vicinity of the synchondrosis, or over other parts of the back as well?

DR. GOLDTHWAIT: Practically always over the synchondrosis. Women put their fingers right on the two spots. Women complain most of the heavy, dragging pain. The man whom I showed to-night complained of sharp pain. It is interesting to note also, that the women complain as a rule much more of the backache at the menstrual period and that there is a physiological relaxation of the sacro-iliac joint at that time just as at the period of pregnancy.

DR. F. B. HARRINGTON: Have you ever seen a septic disease of this joint?

DR. GOLDTHWAIT: Yes, I have seen a septic arthritis.

DR. HARRINGTON: I recall a case where there was septic disease connected with the articulation. I saw it ten or twelve years ago.

DR. MIXTER: Is disease common in this joint?

DR. GOLDHTWAIT: Very common.

A CASE OF SUDDEN DEATH ASSOCIATED WITH STATUS LYMPHATICUS.

BY OSCAR RICHARDSON, M.D.,

AT the clinical meeting of the staff of the hospital on Feb. 12, 1904, I gave a brief account of the conditions found at autopsy in a case of Dr. Mumford's where sudden and unaccountable death followed hard upon what seemed to have been a successful operation for removal of a tumor of the jaw. The autopsy, however, clearly showed that the case was one of that increasing group associated with sudden death without apparent cause and known as status lymphaticus.

In association with Dr. Mumford's case I now wish to call your attention to another instance of sudden death occurring shortly after a surgical operation, and which the autopsy demonstrated to be another case of status lymphaticus. Through the courtesy of Dr. Beach into whose service the patient came, I would say that the case was that of a boy of nine years of age, who came to the Accident Room suffering from a cut in the region of his right knee, which he stated had been made with a piece of glass. A physical examination was made and nothing contra indicating, ether was administered and the cut which extended into the knee joint received proper surgical attention. The patient was then taken to the ward as usual. Shortly after his arrival in the ward he vomited, but this was attended to by placing him in proper position and clearing out his mouth and pharynx. The patient, however, became slightly cyanotic, gasped feebly; his pulse could not be felt nor his heart sounds heard, and, although tracheotomy and artificial respiration were immediately resorted to, he died. It was decided that the case be brought to the attention of the medico-legal examiner, Dr. Harris, and through his courtesy the autopsy was performed at this hospital and in his presence.

At the autopsy the body presented was that of a boy of nine years of age, well developed and fairly well nourished. In the skin in the region of the right knee there was a linear wound closed with sutures.

On section the abdominal viscera were normal in appearance, but on removing the sternum a greatly enlarged thymus gland was startlingly visible. The organ extended as a tongue-shaped mass of pinkish gray, rather soft elastic tissue from the lower border of the thyroid gland down in front of the trachea, and between the lungs as far as the upper part of the right ventricle and covering over the first portions of the aorta, the pulmonary artery and a part of the right auricle. Its greatest dimensions were 12 cm. in length by 4.5 cm. in width by 3 cm. in thickness.

The heart was not remarkable, but the aorta was small, its intima smooth and its wall very pale and of almost paper-like thinness. The cervical and mesenteric lymphatic glands were slightly enlarged. The trachea and bronchi, on section, were free and presented a reddened mucosa, bathed with a slight amount of reddish mucus-like material.

The lungs, on section, presented no areas of consolidation, but showed here and there small hemorrhagic spots.

The above mentioned conditions found at autopsy clearly classify the case as one of status lymphaticus.

The number of reported cases of status lymphaticus by different observers is now numerous enough to establish for it what may be called a fairly definite pathological condition, although we are still in doubt as to how the sudden death so strikingly associated with this condition is brought about. A large number of cases are found at autopsy in young children where death has been sudden and unaccountable, and where,

in many instances, dyspnea has been the marked clinical feature, giving to these cases the name of thymic asthma. Other cases are those associated with anesthesia and surgical operations with unexpected death, while some are found at autopsy where death has occurred after physical shocks which ordinarily would have produced no lasting effect. The condition of status lymphaticus has also been found at autopsy accompanying infections where death has occurred too soon to be accounted for by the infectious process, and we have recently performed an autopsy where the conditions found seemed to prove this association to be probable.

Various observers have found the condition to be present in epilepsy, exophthalmic goiter, rachitis, and in cases where pathological changes in the suprarenal bodies have been stated to exist. This co-existence of pathological conditions, however, appears to be inconstant, although the character of the disease is probably modified by it.

At autopsy these cases of status lymphaticus present an enlarged thymus, a small, thin-walled aorta, more or less hyperplasia of the lymphatic apparatus and with the enlarged thymus appearing to be the constant factor. Just how this condition brings about death has not as yet been satisfactorily demonstrated. In the cases of young children, as Jacobi has pointed out, the space for the thymus gland is pretty small and it seems reasonable to believe that an enlarged congested thymus might bring about death from pressure on the trachea, the nerves and the great blood vessels.

Some experimental work has been done in regard to the poisonous nature of substances obtained from the thymus gland, but without any edequate solution of the problem. Blumer has called attention to the hypothesis that the condition known as status lymphaticus is probably associated with, if not due to, a condition of intermittent lymphotoxemia and that it may be associated with sudden death as a result of lymphotoxemia alone in some cases, or as a result of the action ot toxic, physical or psychic injuries which are rendered much more powerful than usual by the predisposing action of the lymphotoxemia. He bases this hypothesis on the idea that individuals who are the subjects of the status lymphaticus are born with an instability of the mechanism regulating the "horror autotoxicus," at any rate so far as the lymphatic apparatus is concerned, so that they are subject to intermittent attacks of lymphotoxemia which may lead to reflex nervous phenomena of various kinds, or may cause death from cardiac paralysis. By the term "horror autotoxicus" he refers to the regulatory mechanism which prevents either the action or the formation of autocytotoxins in consequence of absorption of our own degenerated and dead cells which Welch called attention to in his Huxley lecture.

In further support of the hypothesis, he calls attention to the great similarity which exists between the histological pictures of the gland tissue in status lymphaticus and those in Flexner's description of the gland tissue of guinea pigs, showing lesions produced by lymphotoxins. This hypothesis is a fascinating one, but requires, as does the entire subject of the ductless glands, further investigation.

The following cases are of interest as being instances of successful surgical interference in thymic asthma;

One reported by König,[1] was a child nine weeks old, which since it was eight days old had suffered from severe attacks of dyspnea. The thymus was made out to be enlarged, extending to the cricoid in the neck. By means of a transverse incision it was exposed, the cervical portion excised, and the thoracic portion drawn up and anchored by sutures to the fascia over the manubrium. The operation was completely successful in relieving the dyspnea, and healing was uneventful.

The other case, reported by Siegel,[2] was a boy of two and a half years, who had been tracheotomized for a sudden attack of dyspnea. The insertion of an ordinary cannula did not afford relief, and it was not until a tube had been inserted nearly to the tracheal bifurcation that the dyspnea ceased. A diagnosis of enlarged thymus was made, and the thymus was drawn up and sutured to the fascia over the sternum. Recovery was uneventful, with no recurrence of the dyspnea.

A CASE OF MONOPLEGIA AND APHONIA OF TWENTY YEARS' DURATION.

BY H. C. BALDWIN, M.D.

THIS case was shown at a clinical meeting a year ago. At that time the patient was just beginning to speak in a natural voice and to walk. The society may be interested to see the further development of the case.

A brief résumé of the case is as follows: The patient is thirty-nine years old; single, a native of the South and belongs to a good family. Up to the age of nineteen the patient had been comparatively strong, and was able to walk and run as well as any one. She had no trouble with her voice. As a child she used to walk in her sleep, especially when she was excited. If there were to be a party or a pincic, it would be necessary to fasten her to the bed the night before to prevent her from wandering around the house.

There is no history of any injury except that the winter before her sickness began, she fell from the second round of a ladder and struck the back of her head. She was not unconscious and no effects were noticed from her fall.

The family history is negative.

When the patient was nineteen she had a pain in her back. One day when her sister unexpectedly put a hand on the patient's back the patient collapsed. She was put to bed to rest for a week. She did not get out of bed at all for three years, and was not able to be lifted into a reclining chair during this time. After she had been in bed six months, she entirely lost the use of the right leg and arm, and they became perfectly numb, so that she did not feel a pin prick. This numbness and paralysis continued for about a year, when she recovered the use of the arm. She has never moved the right leg in any way, although the disturbance of sensation disappeared. She was taken

[1] Centralblatt für Chirurgie, 1897, p. 605.
[2] Berliner klinische Wochenschrift, 1896, No. 40.

to Philadelphia, after she had been in bed for three years, and was six months in a private sanatorium without improvement. After five years from the beginning of her sickness she began to go around with crutches. Her left leg moved naturally, but her right leg was absolutely paralyzed. She could neither move it nor bear her weight upon it. About four months after she began to use crutches, she lost her balance

FIG. 1. — Taken December, 1903. Shows patient beginning to walk.

and fell down a flight of stairs striking her head. She was not unconscious, but was obliged to stay in bed four months after this accident. For a time she was unable to make any sound, and since the accident she has been unable to speak except, in a low whisper.

Before getting out of bed at all she was fitted to a brace for her back, which she wore constantly.

When the patient came to see me in September, 1903, physical examination showed the reflexes of right leg active and differing in no degree from the reflexes of the left leg. She was unable to make the slightest movement of any muscle of the right leg, and had never made any movement since her sickness began nineteen years before. There was no marked wasting of the right leg, but the muscles were soft and the joints relaxed. There was such marked toe drop of the right foot that the toes and bottom of the right foot were flat on the bed when she lay on her back. There was no disturbance of sensation of the right leg, and the electrical reactions were normal.

The patient was told that she could be taught to speak by developing head tones in the way that pupils without natural singing voices learn to sing. The usual methods in cases of functional aphonia were of no avail in this case, and the voice was developed gradually by systematic daily practice. In a properly trained voice the upper tones are placed forward and seem to come from the head through the nose, and the nose may be felt to vibrate. After explaining this to the patient she was asked to take hold of her nose and try to say "nee." We worked together in this way for about a week before the patient could say "nee" successfully. Of course, the moment she made this vocal sound, she had begun to use her vocal cords. The next exercise was to make the combination "hm-nee-ah," the first sound being made with the mouth closed and then opened on the "nee-ah." The patient was most faithful in practicing by herself, for no one would supplement the daily work of teaching as it was considered silly and impracticable. It was at least six weeks before any natural speaking voice was developed. At first

FIG. 2. — Taken December, 1903. Shows buckling of right knee when patient put weight upon it.

she could only speak out loud by singing, or by intoning with a higher pitch than the natural voice, and she could not speak without concentrating her whole attention on her voice. Gradually she developed the lower tones, was able to speak with a natural voice without con-

centrating her whole attention on the matter, and developed a good talking center. Apparently what pleased the patient more than her ability to talk aloud was that she could laugh out loud.

It was a much more difficult matter to develop the use of the right leg. For nearly twenty years she had not been able to move it in any way, and had placed no weight on it during that time. A plaster bandage was put on the leg, and the patient was told that the bandage would keep the knee from buckling and that she would be able to stand on the leg and push it along. Each day she was made to stand and work at walking, her right leg being pushed along while she was held. It was soon found that the patient had completely lost all power of balancing. This was a

Fig. 3. — Taken January, 1905. Shows patient walking heel and toe.

very difficult matter for her to learn. During the first six weeks the patient was not able to make any motion of her leg or to move any part of it — not even her toes. At the end of six weeks of daily practice at walking, the plaster was taken off. The muscles of the leg were stimulated with Faradic current, and the patient was taught to make motions with the muscles of the leg with the aid of Faradic stimulation. The first motion that she made was with her toes, and in the course of the following month she learned to make every motion of the foot and leg. The exercise of walking was kept up daily, her knee and ankle being bandaged with

Fig. 4. — Taken January, 1905. Shows patient standing on right leg only.

flannel bandage to keep them from buckling so badly, and the toe being held up with an elastic apparatus. She gradually learned to balance, to walk with the aid of a cane, and the buckling of the knee and ankle and the toe-drop disappeared.

The brace which the patient had worn constantly for fifteen years (day and night) was taken off early in the treatment of the case. At first the patient complained bitterly, but gradually the lameness and sensitiveness of the back disappeared under massage and exercises.

The patient returned to her home about a year ago. She could then speak naturally, without any effort of will. Her ability to walk, however, depended upon conscious concentration of effort. With constant urging by letter and with the aid of gymnastic instruction she kept what she had gained, but did not improve, during the next three months. She then had a severe attack of grippe, which confined her to her bed for a long

time, and when she came back to see me in June, 1904, she had lost completely the use of the right leg. She spoke as well as any one.

Though she had lost completely the use of the leg, there was one disagreeable complication; she had a contracture of the flexor muscles of the leg, and this has given more trouble than anything else. It was six weeks of daily teaching and effort before there was any movement of the muscles of the right leg. Since then it has been a gradual development. She has learned to walk without a cane, and can walk a mile at a time. Since the middle of September she has walked one hundred and fifty miles by measurement by a pedometer. She can hop well on her left foot, and with very slight assistance can hop slowly on the right foot. She can get off the floor with either foot first, and can kick her right foot as high as the mantel and readily place the foot in a chair. She comes to town by herself, and goes shopping alone, which she has not done for twenty years. From being a chronic invalid with the point of view of life that an invalid has, she has become an active member of the social world, and her standard of living has completely changed. She has gained eighteen pounds in weight.

FIG. 5. — Taken January, 1905. Shows patient's ability to kick foot on table.

In conclusion, cases of this kind require patience, time and training to overcome the habits of long invalidism and to bring about a normal point of view of life, and a new standard of living.

Furthermore, it is necessary in cases of functional paralysis of long duration to re-establish the center of activity on a firm basis, so that the patient uses that center without conscious concentration of effort.

FIG. 6. — Taken January, 1905. Shows present flexibility of patient's back.

DISCUSSION.

DR. J. J. PUTNAM: I think a case like this deserves to be put on file, and I am sure Dr. Baldwin deserves praise for his persistence, his ingenuity and especially for belief in the possibility of improvement. There are a great many points which come to our mind in connection with such a case as this which illustrates the great change that has come over medical practice and medical knowledge with regard to the subject of hysteria. To show to how great an extent hysterical patients can be trained is important. Dr. Mitchell reported last year at Washington the case of an hysterical male patient who had gone around all day long for a number of years swinging his arm. He finally died and a careful examination was made with the result that no changes of a degenerative nature were found in the nerve centers, a thing which Dr. Mitchell considers important. In this case we should probably find the same thing to be true, *i. e.*, no material change in the nerve centers.

In connection with this brilliant result in the way of training hysterical patients, it should be borne in mind that there are two other methods which have come into notice lately. One consists in analyzing the history of the patient and by this aid discovering that these phenomena were really due to an experience which happened many years ago in the patient's lifetime, which he is unconsciously nursing and which must be brought to light before he can get well. By making the cause of his troubles clear to the patient we can often get good results.

The other method is one that Dr. Hall is using at Marblehead, *viz.: Side-tracking the disease by means of occupation.* Dr. Baldwin referred to the fact that after this patient had been induced to make certain noises (not speech), the ordinary sounds of speech were gradually learned, although the effort to speak

would have been unsatisfactory. Trying to do something, not exactly the thing we want, but something else, is effective. So Dr. Hall leads his patients to make pottery, rugs, etc., and his results speak for themselves.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

EXPERIMENTAL INOCULATION OF SYPHILIS ON ANIMALS.

THE studies of Metschnikoff and Roux, which have aroused so much interest, date back to the year 1903.[1] Their first paper appeared in the *Annales de L'Institut Pasteur* of December of that year. In reviewing the literature of the attempts to communicate syphilis to different classes of vertebrates, it is noted that syphilitic virus has been inoculated into cold blooded animals, as well as different species of birds; but in the large majority of cases the results have been negative. In 1866, Auzias-Turenne claims to have obtained syphilitic papules and mucous patches in a cat. Among the lower mammals pigs have been frequently experimented on. The most recent experiments are those of Neisser, who obtained a single time out of eighteen pigs inoculated under different conditions a circinate exanthem which had some similarity clinically with a secondary syphilide, but which was quite different histologically.

Monkeys were next thought of as a more hopeful species on account of their zoological affinity with the human race. Klebs, and Martineau and Hamonic both reported positive results in single instances; but little progress was made, however, for the reason that the writers had not precisely indicated what species of monkey they had employed in their experiments. There are a large number of species of baboons which react quite differently in the presence of syphilitic virus. Many other investigators have attempted the inoculation of various species of baboons and other monkeys with negative results. These inoculations have been made in the laboratories of Paris, Berlin and St. Petersburg.

In 1893, M. Nicolle showed that certain monkeys were absolutely refractory to syphilis, but succeeded in inoculating a species of baboon. C. Nicolle has recently shown that the baboon which is most susceptible to the syphilitic virus is the *Macacus sinicus*, three individuals of which he has successfully inoculated. In none of the three, however, were there later lesions corresponding to the secondary lesions of syphilis. Metschnikoff and Roux inoculated several baboons of the *Macacus sinicus* species with syphilitic virus and were able to confirm the observations of the Nicolles. Papules were developed at the point of introduction of the virus, which became covered with crusts, which fell at the end of some time. The lymphatic glands in the neighborhood were enlarged. The short duration of the primary lesion and the absence of secondary accidents shows that this species is but feebly sensitive to syphilis.

Starting with the proposition that the anthropoid ape approaches nearest the human species, attempts were made to inoculate a female chimpanzee on the prepuce of the clitoris with a small amount of serum taken from an indurated chancre of a man. The latter lesion was of a month's duration and was in progress of healing, and the individual who furnished the virus exhibited a well-marked roseola. At the same time the chimpanzee received a second inoculation over the right eyebrow with serum taken from a mucous patch in an individual who had recently had the primary manifestation of syphilis. As these two inoculations were made with virus of a syphilis well advanced, the third inoculation was made from a chancre of only three days' duration. This inoculation was made in the fold of the prepuce of the clitoris of the left side.

On the twenty-sixth day after the introduction of the virus, a small vesicle appeared at the point of the first inoculation, which gradually developed into an indurated ulcer with all the appearances of a primary lesion. The lymphatic glands in the right groin corresponding to the chancre became swollen.

Just a month after the appearance of the chancre, papules were seen on the trunk of the animal, as well as on the thighs. In all about fifteen in number, they presented a scaling, dry surface, and a crusting of the center. These were considered analogous to the lesions of syphilis found in man. Other glands beside those of the groin were later enlarged. Forty-nine days after the appearance of the first syphilides, the animal, which had been rapidly failing, was found dead. Pneumococci were found in the blood of the heart, spleen, liver and lungs, and it was evident that the animal died of a "pneumococcia," which had probably entered through ulcerations that had been observed in the mouth but that were not attributed to syphilis.

These experiments proved that the chimpanzee is much more susceptible to the syphilitic virus than ordinary monkeys; and that beside the primary lesion which heals slowly, secondary appearances in the form of squamous papules develop. It also showed that a primary lesion that has existed a month still possesses enough virus to produce the disease in the chimpanzee. It also shows that immunity is quickly established, as, of the three successive inoculations, the first was the only one which gave results.

Experiments were then undertaken to see if the syphilis of the chimpanzee could be transmitted to other individuals of the same species; and with that aim in view inoculations from the chancre of the first animal were made upon a male chimpanzee, both from the primary lesion when it had been present forty-five days and also from a syphilitic papule. The first inoculation was made upon the penis of the second animal, the second inoculation upon the left thigh.

[1] BOSTON MEDICAL AND SURGICAL JOURNAL, Oct. 15, 1903.

About a month after the inoculation, lesions began to form at both the points of inoculation, which became indurated and were accompanied by enlargement of the glands of the side corresponding to the lesion. Unfortunately this animal died forty-five days after the beginning of the syphilitic appearances without it being possible to find any secondary appearances, but the writers regard the proof that syphilis may be transmitted from one chimpanzee to another as sufficiently demonstrated.

Metschnikoff and Roux's second paper appeared in the *Annales* for January, 1904. In it they noted that Lassar of Berlin had confirmed their results by inoculating syphilis upon a male chimpanzee. Twelve experiments were made by them upon different varieties of baboons, from only four of which some insignificant lesions were produced. The slight importance of the syphilitic lesions, their short duration and the absence of secondary appearances would suggest the supposition that the baboons are capable of attenuating the syphilitic virus. To decide this question, it was necessary to inoculate this virus after its passage through the organism of the baboon upon an individual susceptible to syphilis. For this purpose they took the chimpanzee whose susceptibility to syphilis they had already demonstrated. A young chimpanzee was therefore inoculated from one of the baboons, the virus being taken from a lesion of the eyebrow that had developed subsequently to an inoculation with syphilitic virus from a human subject. Fifteen days after the inoculation, the clitoris upon which the inoculation had been made became reddened and scaly, with several macules. There was no infiltration about these small lesions, which disappeared in a few days.

Thirty days after the first inoculation, the chimpanzee was inoculated from the secretion of a syphilitic chancre from a patient who had had the chancre for eight days and presented enlarged glands in both groins. No local syphilitic manifestations were observed from these inoculations; but eight days after the inoculation from human virus, the chimpanzee presented a general adenopathy. Since no syphilitic manifestations had been seen sixty-three days after the introduction of the human virus, the writers consider that they have the right to conclude that the first inoculation with the baboon's virus produced immunity to the syphilitic virus. The possibility of obtaining an attenuation of syphilitic virus by its passage through the baboon, and of producing an artificial immunity by the aid of this attenuated virus is therefore evident. As the virus of the baboon, although attenuated, produced a general adenopathy in the chimpanzee, a still more feeble virus would be desirable.

The third paper is to be found in the November, 1904, number of the *Annales*. Up to that time ten chimpanzees had been inoculated with syphilitic virus from different sources, and ten positive results had been obtained. Adding to this the two successful inoculations of Lassar, twelve chimpanzees inoculated have all acquired syphilis. The incubation of the syphilis inoculated from the human subject has varied from twenty-two to twenty-seven days. The primary lesion appeared as a small spot, slightly redder than the surrounding part and very slightly raised. In two cases vesicles developed from the red macules, but usually the lesion became covered first with scales, later with crusts, which after a time developed into very characteristic indurated chancres with projecting edges and ulcerated floor. Some days after the appearance of the primary lesion, the neighboring lymphatic glands began to enlarge; hence the appearances accorded perfectly with those in man. Secondary appearances in the form of scaling papules which presented all the typical characteristics of analogous lesions in man were also observed. A histological study of the syphilitic lesions of the chimpanzee, both in the case of the writers and those of Lassar, show a very great analogy with human syphilis, exhibiting a great accumulation of mononuclear cells and a characteristic peri-arteritis. In one of the chimpanzees mucous patches of the tongue and of the lip were observed, and in this animal, a paraplegia also occurred which lasted more than a month.

No satisfactory result was obtained from examining the secretions in these cases. The serum contained in the initial vesicles showed the presence of masses of leucocytes, and a certain number of red blood cells, but they could find no microbes. It might be supposed that we have here to do with one of those invisible microbes which we are forced to suppose exist in certain infectious maladies, such as aphthous fever or yellow fever.

In the recent experiment of Klingmüller and Baermann, these observers inoculated themselves with syphilitic products triturated with water and filtrated. The result of several inoculations was entirely negative; hence the authors conclude that the syphilitic virus was removed by the filter. This experiment was not controlled by proving that the virus before filtration was capable of transmitting syphilis, and the delay of several hours might have been capable of lessening its virulence.

Metschnikoff and Roux repeated this experiment upon a chimpanzee, inoculating the filtered virus from the indurated chancres of two men. The inoculation was not followed by any result. As a control experiment, another chimpanzee was inoculated with the same mixture not filtered. Thirty-seven days after the inoculation, which was made upon the eyebrow, papules appeared, which soon developed into typical chancres, followed by the swelling of the neighboring glands at the angle of the jaw. Chancres also developed upon the thigh, where another inoculation had been made. The results, therefore, agreed with those of Klingmüller and Baermann that the syphilitic virus may be isolated by filtration.

Experiments were undertaken to determine at what temperature syphilitic virus would lose its pathogenic action. It was found that when heated for an hour at 51°, inoculations in chim-

panzees proved absolutely negative. It was also found that when glycerine was added to syphilitic virus the pathogenic power was impaired. On the ground that infectious material deprived of its virulence is often capable of preserving the organism from the corresponding disease, it was asked whether the syphilitic virus after filtration or subjection to heat of 51° could not be transformed into a vaccine. Two experiments with champanzees which had been treated with filtered virus and with virus heated to 51° demonstrated that syphilitic virus inoculated upon these animals was followed by positive results, showing that the virus in these conditions is incapable of vaccinating the organism.

It was found by experimentation that different species of the lower orders of monkeys react differently to the inoculation of syphilis. In some of these experiments it would appear from the text that the proof that the lesions produced in the inoculated animals was not sufficiently clear.

Many attempts have been made to obtain an antisyphilitic serum, but only negative results have so far been recorded. It is considered that perhaps the study of experimental syphilis on monkeys will be able to throw more light on this question.

The writers conclude by asserting that the study of the disease in animals is only in its infancy, and that there is a vast field of experimentation to be covered.

(To be continued.)

Recent Literature.

The Surgical Treatment of Bright's Disease. By George M. Edebohls, A.M., M.D., LL.D., Professor of Diseases of Women, New York Post-Graduate School and Hospital, etc., etc. pp. 340, 2 illustrations. Frank F. Lisiecki. New York. 1904.

The attention which the subject of the surgical treatment of Bright's disease, and especially the work of Dr. Edebohls, has attracted will insure for this volume a careful perusal. For although it is too soon to present a complete statement, the writer has tried in this volume to meet, as far as possible, the demand of the medical profession for such facts and information as are now available. Two fifths of the work represent the contributions of Dr. Edebohls to the literature of this subject, the most recent of which have appeared almost contemporaneously with the inception of his book, and which he believes embody, with reasonable completeness, the present knowledge of the surgical treatment of Bright's disease. These publications are arranged in chronological order. The remaining three fifths present to the reader entirely new material never before published.

The book is a very interesting history of the subject and is well told. The sequence of events by which the "Edebohls" treatment was suggested is related. Renal decortication versus nephrotomy, resection, or nephrectomy is the subject of one of the chapters. The changes following decapsulation and the formation of a new capsule are described. The indications and contra-indications for decapsulation are stated. The condensed histories of 72 patients and results are presented and make very interesting reading. The volume concludes with an analysis of these 72 cases and their results, followed by the conclusions of the author. A bibliography of the literature of the subject and an index are appended. The book is an important contribution to the subject which is one claiming careful consideration by all.

Malignant Diseases of the Larynx. By Philip R. W. DeSanti, F.R.C.S., Surgeon to the Throat, Nose and Ear Departments, Westminster Hospital, London, etc. New York: William Wood & Co. 1905.

This is a monograph of one hundred pages, intended "to place before the profession the views held in England as to the correct operative treatment of laryngeal cancer." As a preliminary to this, the whole subject of cancer of the larynx is very well reviewed. The book is based on the work and experience of Butlin and Semon, and in fact is written as a last edition of Butlin's previous monograph. The importance of the subject, which has in recent years become well established, lies in the fact that intrinsic carcinoma of the larynx, if not too far advanced, can, in a large majority of cases, be radically removed. An early diagnosis is very important. Intralaryngeal operations should be discarded. The indicated operation is almost exclusively thyrotomy, or laryngo-fissure, with removal of the diseased tissue, except when the extent of the disease makes this insufficient. In suitable cases the mortality from the operation and the danger of recurrence is very small. The details of the operation as at present done by Butlin are described.

There can be no doubt of the value of the book to any one who comes in contact with malignant disease of the larynx.

Guide to the Examination of the Throat, Nose and Ear. For Senior Students and Junior Practitioners. By William Lamb, M.D., C.M., Edin.; M.R.C.P., Lond.; Honorary Surgeon, Birmingham Ear and Throat Hospital. New York: William Wood & Co. 1905.

This is a small book of one hundred and fifty pages, describing briefly the common methods of examination of the nose, throat and ear with discursive remarks on anatomy, pathology and morbid appearances. As far as it relates to examinations and normal conditions it is good, although perhaps somewhat too condensed. It has, unfortunately, been tempted into the realm of pathology, where it wanders about unsystematically and superficially. It would aid the primary student in his first clinical course, but cannot take the place of a systemic textbook.

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COUNCIL ON PHARMACY AND CHEMISTRY, AMERICAN MEDICAL ASSOCIATION.

A MOVEMENT which should be most valuable in its results has been started by the American Medical Association in the creation of an advisory board to be known as the Council on Pharmacy and Chemistry of the American Medical Association. The organization of this council was made at Pittsburg, Feb. 11, of this year, and it has already sent out a preliminary statement. As suggested by its name, the immediate object of the council is to examine both into the composition and status of medicinal preparations offered to physicians which are not included in the United States Pharmacopeia or in other standard books. Certain rules have been formulated to which preparations must conform. Such preparations will be incorporated in a book to be published by the *Journal of the American Medical Association* with the title "New and Non-Official Remedies."

In compiling this book information regarding a product will be secured from all possible sources. This information, along with a specimen of the article under discussion, will be submitted to a committee of experts who will report upon it. On the basis of this report the council will take action. If the product be accepted, proper data will also be published regarding it. It is believed by the council that there are now many articles not recognized by the pharmacopeia which comply with the standard and need no further investigation. This will form the substance of the first edition of the book. Later, as new articles are accepted, information regarding them will be provided in the *Journal of the American Medical Association*, and they will find a place in succeeding editions of the book. Ten rules have been formulated as a guide to the council in reaching their conclusions. These rules are as follows:

RULE 1. No article will be admitted unless its active medicinal ingredients and the amounts of such ingredients in a given quantity of the article, be furnished for publication. (Sufficient information should be supplied to permit the council to verify the statements made regarding the article, and to determine its status from time to time.)

RULE 2. No chemical compound will be admitted unless information be furnished regarding tests for identity, purity and strength, and, if a synthetic compound, the rational formula.

RULE 3. No article that is advertised to the public will be admitted; but this rule will not apply to disinfectants, cosmetics, foods and mineral waters, except when advertised in an objectionable manner.

RULE 4. No article will be admitted whose label, package or circular accompanying the package contains the names of diseases, in the treatment of which the article is indicated. The therapeutic indications, properties and doses may be stated. (This rule does not apply to vaccines and antitoxins nor to advertising in medical journals, nor to literature distributed solely to physicians.)

RULE 5. No article will be admitted or retained about which the manufacturer, or his agents, make false or misleading statements regarding the country of origin, raw material from which made, method of collection or preparation.

RULE 6. No article will be admitted or retained about whose therapeutic value the manufacturer, or his agents, make unwarranted, exaggerated, or misleading statements.

RULE 7. Labels on articles containing "heroic" or "poisonous" substances should show the amounts of each of such ingredients in a given quantity of the product.

RULE 8. Every article should have a name or title indicative of its chemical composition or pharmaceutic character, in addition to its trade name, when such trade name is not sufficiently descriptive.

RULE 9. If the name of an article is registered, or the label copyrighted, the date of registration should be furnished the council.

RULE 10. If the article is patented — either process or product — the number and date of such patent or patents should be furnished. If patented in other countries, the name of each country in which patent is held should be supplied, together with the name under which the article is there registered.

The plan outlined above must meet with the general approval not only of the medical profession, but also of manufacturing pharmacists and chemists who are striving to live up to their professions in serving the public. It has long been evident that many preparations of distinct

value in medical practice are now on the market and are being extensively used by reputable physicians which, for obvious reasons, have found no place in the pharmacopeia. It is also true that many preparations are before the public, which, for one or another reason, do not deserve confidence. There should certainly be some authoritative board which will decide, so far as possible, the question of the legitimacy of preparations, a matter which is clearly quite beyond the power of the individual physician to determine. That the work before the council will demand much tact and judgment is evident. For this very reason it is the more needed.

It is not intended that the council shall pass on the therapeutic value of the article, but merely on its ethical status. Nor is it intended at present to conduct an active campaign against fraudulent products, but merely to supply necessary and desirable information concerning those which are considered unobjectionable. The names of Cushny, Novy, Wiley, Simmons and many others which appear as members of the council insure a conscientious and scientific investigation of the claims of the various medicinal productions. Beyond the inherent difficulties of the task which this council has undertaken we can conceive of no possible objection to the plan, and on the other hand can see in it a very distinct advantage to the profession at large.

ACTIVE OXYGEN AS A FOOD PRESERVATIVE.

The matter of the preservation of food has attracted considerable attention for some time past, largely through the efforts of Dr. H. W. Wiley, Chief of the Bureau of Chemistry at Washington. It has been clearly demonstrated by Dr. Wiley and others that boric acid and borax, sulphites and salicylic acid are productive of harm to the human body, and that their use in articles of food should be stopped. In the face of legislation against the use of food preservatives, other than the accepted alimentaries such as salt, sugar, vinegar and wood smoke, we find, from time to time, suggestions as to so-called legitimate preservatives for food. In the *American Inventor*, Jan. 1, 1905, Richard von Foregger, Ph.D., who writes under the caption "A Legitimate Food Preservative — Active Oxygen," recommends the use of magnesium dioxide which upon decomposition furnishes nascent oxygen which, in turn, prevents the development of bacteria. This suggestion is worthy of some comment.

So far as we know, the use of magnesium dioxide (peroxide) as a preservative for food is new, but nascent oxygen in the form of hydrogen peroxide has been employed for this purpose for some time, especially in beer, wine and fruit juices, and apparently without harmful effect.

Magnesium dioxide or peroxide is a white powder, odorless and tasteless, insoluble in water, but readily soluble in dilute acids. With carbonic acid it reacts in the following manner:

$$MgO_2 + CO_2 = MgCO_3 + O$$

The oxygen is, therefore, in its nascent state, and has two free affinities by which it is distinguished from molecular oxygen or oxygen in its natural state. Nascent oxygen is bound to enter into combination — to oxidize — and it is apparently by this process that it attacks the lower forms of organic life such as bacteria, thus arresting or preventing fermentation and decomposition.

A number of experiments with magnesium dioxide have been conducted in the New York Board of Health Laboratory under the supervision of Dr. W. H. Park, first upon water which was contaminated with typhoid bacilli, and second, upon fruit juices to which had been added typhoid bacilli. The dioxide was found to be fatal to the typhoid germs in both instances. The experiments with fruit juice are worthy of quotation: "To orange juice containing 2,160 bacteria to the cubic centimeter was added enough typhoid culture to make 4,380 bacteria to the cubic centimeter. Magnesium dioxide was then added in the proportion of 2 gms., 1 gm. and ½ gm. to the liter. One cubic centimeter of each of these mixtures was placed in agar plate. At the end of five and thirty minutes, respectively, the results were as follows:

Orange juice + typhoid + MgO_2 2 gm. = 4 col. in 5 min. and 2 col. in 30 min.

Orange juice + typhoid + MgO_2 1 gm. = 0 col. in 5 min. and 15 col. in 30 min.

Orange juice + typhoid + MgO_2 ½ gm. = 29 col. in 5 min. and 49 col. in 30 min.

The agar plate and broth cultures made from the orange juice plus typhoid plus 1 gm. MgO_2 at the end of twenty-four hours were both sterile." Dr. Foregger made a number of experiments with beer to which had been added from 35% to 40% of the dioxide, and the results were satisfactory.

We are not in a position to encourage the use of nascent oxygen from magnesium dioxide, for the reason that the principle of food preservation by other means than the use of salt, sugar, vinegar and wood smoke, is wrong. On the

other hand, if a preservative, other than those mentioned, *must* be used, it is important that some substance be employed which will do no harm. It is difficult to understand how the use of magnesium dioxide can be harmful, since the amount of metallic magnesium entering into the food would be infinitesimal and often exceeded by the magnesium content of many drinking waters, and, furthermore, because magnesium salts are natural constituents of most articles of food.

LESIONS OF THE SACRO-ILIAC ARTICULATION.

STRONG evidence is being adduced to show that in the majority of all individuals there exists both anatomically, and clinically, a true joint between the sacrum and ilium, rather than, as ordinarily has been supposed, a synchondrosis. If this fact be definitely established, as it may be by the study of the articulation, post-mortem as well as during life, the deduction naturally follows that this region of the body may be subject to disease in the same manner as any other joint. If, therefore, for any cause whatever, the ligaments and supporting structures about the joint become relaxed, an undue mobility between the sacrum and the ilium will naturally be induced. It has long been recognized that a definite physiological relaxation at this part of the pelvis takes place during pregnancy.

Admitting the possibility of disease of this joint, and of its possible slight displacement under conditions of relaxation of ligaments, it is natural that in its symptomatology there should be pain, referable to the legs, owing to irritation or possible slight compression of the lumbo-sacral cord which passes directly across the articulation. This anatomical fact also explains a reference of the pain, both to the anterior crural distribution on the front of the thigh as well as the more usual pain on the back of the leg due to the sciatic involvement. The mobility to which we have alluded may in certain instances lead to a slight subluxation. The persistent pain, often low down in the back, in which the marked rigidity seen in persons suffering from an arthritic process of the hypertrophic form does not exist, is best explained by the foregoing hypothesis rather than by that ordinarily given of a supposed rupture of the lumbar aponeurosis. In such cases pain is definitely referred to the articulation on one or the other side of the body, and there may also be pain on pressure at certain more or less localized points.

The foregoing observations and deductions, which have recently been brought to the direct attention of the profession through the work of Goldthwait and his colleagues, offer a rational explanation of many of the obscure, painful affections of the lower back. A large number of cases have been studied of persistent pain in this region, or referable to the legs, which have been unrelieved by gynecological or other treatment, often operative, whereas the mobilization of the sacro-iliac joint by suitable apparatus has resulted in a distinct relief of the symptoms. It is evident that the suggestion here offered should be fruitful in stimulating other investigators in establishing to their own satisfaction the correctness of the point of view advanced. Practitioners in every department of medicine have long been puzzled by pain of the nature of so-called lumbago, the satisfactory explanation of which has not been possible. Naturally every new hypothesis, particularly if it be of so radical a character as this of Dr. Goldthwait, should be verified and tested by many observers before being generally accepted. That such a verification, or disproval of this theory of lumbar pain will soon be forthcoming cannot be doubted, now that special attention is being directed to the subject.

MEDICAL NOTES.

A NATIONAL LEPROSARIUM. — Senator Crane's bill to establish a national leprosarium failed to get through Congress in its last days. There is reason to believe that it will fare better with the next Congress.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon March 8, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 35, scarlatina 21, typhoid fever 4, measles 7, tuberculosis 49, smallpox 0.

The death-rate for the reported deaths for the week ending March 8, 1905, was 17.66.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 4, 1905, was 230, against 241 the corresponding week of last year, showing a decrease of 11 deaths and making the death-rate for the week 19.53. Of this number 127 were males and 103 were females; 221 were white and 9 colored; 145 were born in the United States, 81 in foreign countries, and 4

unknown; 52 were of American parentage, 140 of foreign parentage, and 38 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 23 cases and 2 deaths; scarlatina, 24 cases and 1 death; typhoid fever, 9 cases and 1 death; measles, 7 cases and no deaths; tuberculosis, 59 cases and 35 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 32, whooping cough 1, heart disease 25, bronchitis 5, and marasmus 5. There were 9 deaths from violent causes. The number of children who died under one year was 40; the number under five years 59. The number of persons who died over sixty years of age was 52. The deaths in public institutions were 77.

Osteopaths and Regulators of the Sale of Cigarettes have Leave to Withdraw. — The Committee on Public Health of the Massachusetts Legislature has given leave to withdraw to the petitioners under House bill No. 494, defining the practice of medicine and regulating the practice of medicine and osteopathy; also to petitioners under House bill No. 608 relative to the sale of cigarettes.

Report of the Butler Hospital. — According to the sixty-first annual report of the Butler Hospital, it appears that this well-known institution for the treatment of the insane has had a year of uninterrupted prosperity and progress. The whole number of patients under treatment during the year was 258, with an average at the hospital of 172. Further statistics show that 95 patients were discharged, of whom 16 had recovered, 30 had improved, 23 had not improved, 9 were not insane when admitted, and 17 had died. Dr. Blumer in his report calls attention to the various details of the hospital work and lays stress again as heretofore upon the necessity of inculcating the doctrine that diseases of the mind are diseases of the brain, and that the prejudice against mental disease among the laity must be eradicated.

NEW YORK.

A Smoking Centenarian. — Daniel McCarthy died at Plainfield, N. J., on February 20, at the age of one hundred years. He is stated to have been an inveterate smoker from boyhood.

Donation. — As a memorial to their son, Frank, who was recently killed in an automobile accident in Florida, Mr. and Mrs. Richard Croker have given $5,000 to various charities in the city. Among these, St. Joseph's Hospital for Consumptives receives the sum of $500.

Centenarian. — Miss Rachel Martense died recently in Flatbush, Brooklyn, N. Y., at the reputed age of one hundred and four years.

Bequest to Home for Incurables. — Among the charitable bequests of the late Mrs. Mary N. Hunt is one of $5,000 to the Home for Incurables. Mrs. Hunt who died the middle of February, at the age of ninety, was the widow of Washington Hunt, at one time Governor of New York.

The Oldest New York Citizen. — Joseph McGrath, probably the oldest man in New York City, died on February 20, in the one hundred and eighth year of his age. He left more than two hundred direct descendants, including children, grandchildren, great-grandchildren, and great-great-grandchildren. His wife, who was three years older than himself, died twelve years ago, at the age of ninety-eight. He was born in September, 1796, in Ireland, where he spent more than fifty years of his life, and until a month previous to his death he is said to have been as vigorous as a healthy man of sixty.

The Water Supply. — On February 20, Governor Higgins sent to the legislature a special message in regard to the water supply of New York in which he recommended the passage of a bill which would enable the mayor of the city to appoint a continuous body composed of able men, selected without reference to political affiliations, to work out the problem of furnishing an adequate supply in the future. He also recommended a state commission, composed of members having proper scientific and legal qualifications, which should examine and pass upon all plans for new sources of water supply or additions to existing supplies. On the following day both Mayor McClellan and ex-Mayor Low addressed committees of the Senate and Assembly at Albany on behalf of the city bill ofr the $90,000,000 extention of the water supply recommended by the Burr Commission.

February Mortality. — The weekly reports of the Health Department show that the mortality in the city during the month of February represented an annual death-rate of 20.26 as against 19.82 in January, and 22.59 in February, 1904. The corrected death-rate, excluding non-residents and infants under one week old, was 19.41. The changes in the number of deaths from the several diseases were comparatively slight. Among those in which there was an increased fatality were the following: The weekly average of deaths from diphtheria and croup increased from 42 in January to 45.75 in Febru-

ary; the weekly average from whooping cough increased from 4.5 to 7.25; from epidemic cerebrospinal meningitis, from 27 to 37.5; from pulmonary tuberculosis, from 162 to 174; from diarrheal diseases, from 35.25 to 36.5; from diarrheals under two years of age, from 28.5 to 30.25; and from organic heart diseases, from 103.25 to 112.25. Among the diseases which showed a diminished mortality were the following: The weekly average of deaths from scarlet fever decreased from 16.25 to 15.75; from measles, from 7 to 6; from influenza, from 23.75 to 15.5; from typhoid fever, from 11.5 to 7; from pneumonia, from 180.25 to 172; from broncho-pneumonia, from 115.25 to 102.25; from acute bronchitis, from 39.5 to 35.75; from cancer, from 55.5 to 49.75; and from Bright's disease and nephritis, from 132.25 to 130.25.

EPIDEMIC CEREBROSPINAL MENINGITIS. — At a meeting of the Board of Health held March 1, the President, Dr. Darlington, was authorized to request a special appropriation from the Board of Estimate and Apportionment to provide for a commission to investigate the subject of epidemic cerebrospinal meningitis, with a view to suggesting measures for the curtailment and possible stamping out of the disease. In 1904, there were 1,211 deaths from it in the city, as against 271 in 1903. In January, 1905, there were 107 deaths, as against 25 in January, 1904, and in February, 1905, 149 deaths, as against 26 in February, 1904.

Miscellany.

NEW YORK'S DISPENSARY SYSTEM.

FROM advance sheets from the Annual Report of the Committee on Dispensaries of the New York State Board of Charities, the following is taken:

On Oct. 1, 1903, there were 123 licensed dispensaries in the state. Four dispensaries have ceased work since that date and no new licenses have been issued during the year. Since Oct. 1, 1904, licenses have been issued to the Italian Benevolent Society to conduct a dispensary at 169 West Houston Street, Borough of Manhattan, New York City (license granted Oct. 12, 1904), and to the Bedford Guild, 962 Bergen Street, Borough of Brooklyn, New York City (license granted Dec. 21, 1904). Of the 123 dispensaries which were open during a whole or part of the year ending Sept. 30, 1904, 20 were in receipt of public money directly ($11,032.40 all told), 61 were connected with other charities in receipt of public appropriations and 42 were supported wholly by private contributions. The total property, real and personal, of the 81 dispensaries in receipt of public funds and reporting annually to this board was $1,175,436.56 Oct. 1, 1904; their total indebtedness on the same date, $68,996.40; their total receipts for the year ending Sept. 30, 1904, $125,113.16; and their total expenditures $105,642.69.

The work of these dispensaries is of more than casual interest and importance in view of the fact that such work is more extensively carried on in this state than in any other part of the country, that here it is more highly organized and developed and that here, as in no other state, dispensaries are licensed and regulated by the State Board of Charities.

The system has now been in operation for a little more than five years and certain features and results of its workings are set forth herewith.

During the year the Inspector of Dispensaries has made a special investigation as to the extent of compliance with the rules of the board adopted pursuant to Chapter 368 of the Laws of 1899, affecting the management of all licensed dispensaries. Four out of the 123 licensed dispensaries in operation at the beginning of the year have been closed; a table shows the extent of compliance with the various provisions of the rules on the part of 119 dispensaries remaining.

It appears from this table that with 24 of the 31 requirements of the dispensary rules, compliance is practically complete, that in 4 of these provisions compliance is fairly good and that in three matters, those requiring an investigation to be made as to the ability of doubtful applicants to pay for their treatment, the filing of results of these investigations and of making a minute showing observance of the ordinances and orders of the board of health, compliance is somewhat lax.

Some of the showings of this table are very satisfactory. One hundred and fourteen out of 119 dispensaries examined are keeping reasonably complete records of their work. In 54 cases the examination by the registrar of applicants for treatment is reported as being done thoroughly, and in 31 additional cases as being done fairly well. In only 34 cases is the work reported as being done superficially. As this is, perhaps, the crucial point in the proper administration of dispensaries viewed from the social standpoint, this showing is encouraging though by no means all that could be desired.

In 87 dispensaries obviously well-to-do applicants are refused admission by the registrar after questioning, but without further formality, while in 100 dispensaries where the registrar is still in doubt as to the applicant's ability to pay, persons unwilling to sign representation cards are refused treatment. In 90 out of 119 dispensaries doubtful cases are admitted only upon signing representation cards. This would seem to indicate that the doors of the dispensaries in the state are reasonably well guarded in the large majority of cases, that they are partially protected in most of the remaining instances and that they are not wholly unguarded except in a very small number of cases.

In all but two of the dispensaries a matron is

employed, cleanliness and order are maintained in all but four, and in only three cases the matron is not present at gynecological examinations where such are held. In only three dispensaries is the apothecary unlicensed or not a medical graduate, and in every dispensary compliance with the local ordinances of the board of health is reported as complete. All but 10 of the dispensaries are reported as having suitable equipment and supplies and in practically all of them seats are provided for every applicant, and in the great majority of them the sexes are separated, both in the waiting and in the treatment rooms.

It is interesting to note that the facilities of but 28 dispensaries are used for the purpose of giving medical instruction and in none of these is the treatment given the patient conditional upon his willingness to submit to an examination before a class. Another item of interest is the fact that but 12 dispensaries are without an apothecary as a regular officer or employee of the dispensary, and that in only three cases such apothecary is not a licensed pharmacist or a medical graduate.

DIRTY MONEY.

On February 23, Dr. Darlington, President of the New York City Board of Health, addressed in Washington a sub-committee of the House Committee on Banking and Currency upon the danger incurred through the circulation of unclean money. He stated that the conclusion reached by the advisory board of the Health Department was to the effect that "it is desirable, in the interest of public health, that soiled bills be withdrawn from circulation as soon as practicable," and he submitted the report of a series of experiments recently made by Dr. William H. Park of the bacteriological division of the department thus: a sterile bill was inoculated with diphtheria bacilli which were recovered the second day later, but not on the sixth day. The experiment was repeated, and diphtheria bacilli were recovered first, eight days after the inoculation of the bill, then fourteen, then twenty-one days, and finally at the end of one month. A number of pennies, nickels and dimes were put in the mouths of children suffering from diphtheria, but no diphtheria bacilli could be obtained from these coins twenty-four hours afterward. The results of the experiments indicated that the metallic substances in coins when brought in contact with bacteria through the solvent action of moisture are deleterious to the bacteria, while in paper there are no such substances, the gradual death of the bacteria being due to the effect of drying. The effect of metals was clearly shown in the following experiment: A spray of water containing the ordinary colon bacillus was thrown on pieces of copper, nickel and paper, the number of bacteria deposited on each test object being about 1,500,000. After three hours the test substances were washed off and the number of living bacteria on each was found to be as follows: Paper, 170,000; nickel, 40,000; copper, none. These conclusions were substantiated by the examination of a number of coins and bills taken from a cheap jewelry store. There it was found that dirty pennies averaged 26 living bacteria apiece; dimes, 40; moderately clean bills, 1,250, and dirty bills, 73,000.

Correspondence.

A QUESTION OF PRIORITY.

PHILADELPHIA, March 2, 1905.

MR. EDITOR: Questions of priority in the discovery of medical truth are usually of so little interest to the public and to physicians that we often allow the wrong person to claim, and by our negligence we admit the false claim, of credit for a discovery belonging to another. There is an instance of this in your issue of Feb. 28, 1905, in a paper by Henry A. Kilburn, M.D. He says this paper is only a resume of one published previously in the BOSTON MEDICAL AND SURGICAL JOURNAL of March 24, 1904. Permit me to relate some facts in the appearance of the first paper. About a month previous to March 24, 1904, I wrote Dr. Kilburn of my discovery that a peculiar axis of astigmatism might cause the patient to tilt the head to one side, that the result might be lateral curvature of the spine. I said I had had such a case, and I asked for data of any similar cases in Dr. Kilburn's practice. I received no reply to this letter, and published my report in *American Medicine*, March 26, 1904. But I was astonished to see appear, two days previously, in the BOSTON MEDICAL AND SURGICAL JOURNAL, an article by Dr. Kilburn, upon the subject, but not mentioning my letter on the matter which I confided to him. Luckily two things prevented any successful attempt to take away any honor I might claim. The first was that I said that the tilted head was due to astigmatism which forced the head to one side to get clearer vision. Dr. Kilburn's thought and report was only of an imbalance of the external ocular muscles — an old claim (in my estimation a false one), and of which a number of cases had been reported. The second was that I had written to others at the same time I wrote to Dr. Kilburn.

In your issue of Feb. 20, again designating it as "eye strain," Dr. Kilburn claims priority for the thought, and again fails to mention or refer to my two papers on the subject. He now adds to the cause he had given of curvature due to eye strain, the old and long-exploded cause, myopia. But, without reporting an illustrative case, he adds these words:

"My experience has led me to believe that an oblique astigmatic axis, by causing the patient to tilt the head to one side, to obtain clearer vision (a fact with which every ophthalmologist is familiar) induces a faulty attitude," resulting in lateral curvature.

I by no means wish to imply that this was possibly not thought of, wrought out, and demonstrated by illustrative cases, by Dr. Kilburn, long before myself. But I must ask for demonstration of it in published cases or publicly-made announcement. If it is a truth, why did he not speak of it and allow it in his first article? Why, in that first article did he not add the support by quoting or alluding to my case of which I had written him? Why in the second article does he still not adduce illustrative cases? Why does he in this second article still utterly ignore reference to or hint at my work? Lastly, and of far more importance, where and by whom stated, "the fact with which every ophthalmologist is familiar"? I deny that any textbook or article in the world ever stated this fact before my article of March 26, 1904. It is indeed now "familiar"; but will Dr. Kilburn, on oath, or even without oath, testify that it was familiar to himself before he received my letter in March, 1904, to which I have alluded? I do not care a fig as to my own claim to priority, but I care most acutely that another shall not establish an *unjust* claim to it.

Respectfully yours,

GEO. W. GOULD.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 25, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,559	427	21.87	20.07	2.75	.64	3.14
Chicago . . .	1,990,750	637	240	22.60	27.63	1.25	.94	—
Philadelphia .	1,407,868	579	125	22.60	20.20	2.59	1.73	.17
St. Louis . .	633,606	—	—	—	—	—	—	.17
Baltimore . .	542,229	219	52	22.37	17.35	.91	.46	.46
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,960	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	82	17	19.50	20.72	1.22	—	—
Boston . . .	617,950	217	45	19.35	21.66	1.38	1.38	1.38
Worcester . .	196,925	49	13	12.24	16.32	—	—	2.04
Fall River . .	119,349	57	27	14.03	31.57	—	—	1.75
Lowell . . .	104,402	27	4	14.81	29.22	—	3.70	3.70
Cambridge . .	100,998	23	7	17.39	30.43	4.35	—	—
Lynn	78,875	24	6	8.33	16.67	4.16	—	—
Lawrence . .	72,848	22	6	9.09	31.81	—	4.54	—
Springfield .	72,020	26	3	11.54	23.07	—	—	—
Somerville . .	70,413	24	4	33.33	8.33	4.17	—	8.33
New Bedford	68,863	26	7	11.54	42.30	—	—	—
Holyoke . . .	50,588	19	4	8.33	25.00	8.33	—	—
Brockton . .	46,661	16	4	6.25	—	—	—	—
Newton . . .	39,310	11	2	36.36	9.09	—	—	—
Haverhill . .	39,061	19	4	36.84	10.52	—	—	—
Malden . . .	37,305	11	—	27.27	27.27	—	—	—
Salem	37,188	19	4	5.26	15.78	—	—	—
Chelsea . . .	36,499	10	1	—	—	—	—	—
Fitchburg . .	36,335	8	2	12.50	—	—	—	—
Taunton . . .	34,577	22	2	9.09	27.27	—	—	—
Everett . . .	30,309	7	1	—	—	—	—	—
North Adams	29,201	10	2	10.00	10.00	10.00	—	—
Quincy . . .	26,798	0	—	—	—	—	—	—
Gloucester .	26,127	11	—	—	—	—	—	—
Waltham . .	25,797	8	3	12.50	37.50	13.50	—	—
Brookline . .	23,576	5	—	20.00	—	—	—	—
Pittsfield . .	22,870	13	2	7.70	23.10	—	—	—
Medford . .	21,956	1	—	—	100.00	—	—	—
Chicopee . .	21,692	10	3	30.00	30.00	10.00	—	—
Northampton	20,314	7	1	—	28.60	—	—	—
Beverly . . .	15,807	5	1	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	5	1	—	—	—	—	—
Adams . . .	14,745	3	1	—	33.33	—	—	—
Auleboro . . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	1	0	—	—	—	—	—
Newburyport	14,478	6	1	—	—	—	—	—
Woburn . . .	14,315	8	1	—	12.50	—	—	—
Melrose . . .	13,819	1	1	100.00	—	—	—	—
Westfield . .	13,800	5	0	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	4	0	50.00	—	—	—	—
Revere . . .	13,609	2	2	—	50.00	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . . .	12,406	—	—	—	—	—	—	—
Gardner . .	12,324	2	—	—	50.00	—	—	—
Southbridge .	11,716	2	—	50.00	—	—	—	—
Watertown .	11,575	2	0	—	50.00	—	—	—
Weymouth . .	11,350	6	1	—	16.67	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,823; under five years of age, 1,027; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 780; acute lung disease 814, consumption 396, scarlet fever 19, whooping cough 17, cerebrospinal meningitis 59, smallpox 3, erysipelas 15, puerperal fever 19, measles 9, typhoid fever 32, diarrheal diseases 90, diphtheria and croup 81.

From whooping cough, New York 8, Chicago 7, Boston 1, Newton 1. From scarlet fever, New York 14, Baltimore 2, Worcester, Cambridge and Somerville 1 each. From cerebrospinal meningitis, New York 49, Philadelphia 1, Baltimore 1, Boston 3, Somerville 2, Worcester, Fall River and Lowell 1 each. From smallpox, New York 1, Chicago 2. From erysipelas, New York 10, Chicago 2, Baltimore 1, Somerville 1, Marlborough 1. From typhoid fever, New York 10, Chicago 6, Philadelphia 10, Baltimore 1, Boston 3, Lowell 1, Lawrence 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending Feb. 18, 1905, the death-rate was 17.3. Deaths reported 5,189; acute diseases of the respiratory organs (London) 211, whooping cough 118, diphtheria 67, measles 129, smallpox 2, scarlet fever 44.

The death-rate ranged from 7.1 in Astor Manor to 35.0 in Rhondda; London 16.8, West Ham 15.2, Brighton 14.3, Southampton 17.2, Plymouth 22.9, Bristol 13.8, Birmingham 15.5, Leicester 13.9, Nottingham 20.9, Birkenhead 18.4, Liverpool 21.1, Wigan 12.6, Bolton 15.5, Manchester 19.0, Salford 17.6, Halifax 15.9, Bradford 18.5, Leeds 15.6, Hull 17.8, Sheffield 17.2, Newcastle-on-Tyne 21.9, Cardiff 13.9, Merthyr Tydfil 24.7, Newport (Mon.) 23.6, Hornsey 9.3, Stockton-on-Tees 25.9.

METEOROLOGICAL RECORD.

For the week ending February 25, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 19	30.62	16	25	7	76	55	66	W	S W	15	9	C.	C.	0
M. 20	30.36	38	38	19	64	87	76	S W	S W	12	15	O.	O.	.02
T. . 21	30.28	38	48	32	73	73	73	N	N E	13	13	C.	C.	0
W . 22	30.37	28	33	22	86	76	81	N	N E	15	20	O.	O.	T.
T. . 23	30.14	26	34	17	57	36	46	N	N	20	12	F.	C.	0
F. . 24	29.98	30	40	21	43	42	42	N	N W	11	12	F.	C.	0
S. . 25	29.79	30	34	26	62	68	65	N W	S E	13	8	C.	C.	0
☞	30.22		35	21			64							.02

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MARCH 3, 1905.

E. C. TAYLOR, assistant surgeon. Detached from the "Bancroft" and ordered to the "Colorado."

W. H. HUNTINGTON, pharmacist. Retired, ordered to the Naval Training Station, Newport, R. I.

SOCIETY NOTICE.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. — The Eleventh Annual Meeting of the American Laryngological, Rhinological and Otological Society will be held under the Presidency of Dr. Frederic C. Cobb, at Boston, Mass., on Monday, Tuesday and Wednesday, June 5, 6, 7, 1905.

RECENT DEATHS.

DR. ALVAH R. CUMMINGS of Claremont, N. H., died Feb. 26, 1905, from cerebral hemorrhage. He was a graduate of the Dartmouth Medical School, class of 1853.

WILLIAM RUFUS KING, M.D., M.M.S.S., died in Boston, Feb. 17, 1905, aged thirty-seven years.

BOOKS AND PAMPHLETS RECEIVED.

University of California Publications. Physiology. The Control of Heliotropic Reactions in Fresh Water Crustaceans by Chemicals, Especially CO_2. By Jacques Loeb.

A Laboratory Manual of Human Anatomy. By Lewellys F. Barker, M.B. Tor., assisted by Dean De Witt Lewis, A.B., M.D., and Daniel Graisberry Revell, A.B., M.B. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1904.

Hygienic Laboratory Bulletin No. 19, October, 1904. A Method for Inoculating Animals with Precise Amounts. By M. J. Rosenau.

The Aseptic Technic of Abdominal Surgery with the Topographical and Visceral Anatomy of Male and Female Abdomen. Illustrated. By H. O. Walker, M.D. Reprint.

The History of Pediatrics and its Relation to Other Sciences and Arts. By A. Jacobi, M.D., LL.D. Reprint.

The Anatomy of the Brain. A Manual for Students and Practitioners of Medicine. By J. F. Burkholder, M.D. With an introduction by Prof. Henry H. Donaldson. Illustrated. Chicago: G. P. Engelhard & Co. 1904.

The Medical Epitome Series. Nervous and Mental Diseases. A Manual for Students and Practitioners. By Joseph Darwin Nagel, M.D. Series edited by Victor Cox Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Diseases of the Liver, Gall-Bladder and Bile-Ducts. By H. D. Rolleston, M.A., M.D. (Cantab.), F.R.C.P. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Original Articles.

ABUSE OF MEDICAL CHARITY.

MEDICAL CHARITY.*

BY GEORGE W. GAY, A.M., M.D., BOSTON,
Senior Surgeon, Boston City Hospital.

THE object of this paper is to call attention to the following facts: First, the enormous amount of gratuitous work now being done by the physicians of this city every year.

Second, the acknowledged ability of a certain proportion of the so-called charity patients to pay for services rendered.

Third, the injustice of requiring physicians to treat well-to-do and rich people in our public hospitals for nothing.

For many years the subject of medical charity has at times engaged the attention of some of the brightest minds in the profession. It has grown to such enormous proportions, that, estimated in the currency of the realm, it amounts to millions of dollars annually in this city, and requires the services of a large number of the most accomplished physicians in the community to carry on the work. Formerly, it was something of a reflection upon a person's financial standing for him to go to a public hospital. Modern methods, however, have changed all that, and have encouraged people to flock to hospitals and dispensaries, both public and private, as never before. The dread of these places, once so common, is fast passing away. Patients now resort to them readily, as they have been educated to the idea that they are the best as well as the cheapest places, in which to obtain the services of the leading physicians and surgeons.

Scientific and clinical zeal has also tended to obscure the commercial aspect of the question to the detriment of the profession, and as a result, the community has come to feel that anybody and everybody are at liberty to avail themselves of the benefits of these charitable institutions with perfect propriety; in fact that their presence is desirable for purposes of study and instruction, as well as for the statistics of the annual reports.

The open-door method of conducting metropolitan hospitals and dispensaries naturally draws patients from far and near to the detriment of the suburban institutions and physicians, and not infrequently to the disadvantage of the patients themselves. They go to the trouble and expense of seeking relief at a distance, that they could as well have obtained at home.

The results of the present day method of conducting some of our most important medical charities have convinced many persons of large experience that the work is not carried on in the best manner for all concerned; that they are not managed on sound business principles; that too much gratuitous work is being done by the hospitals and dispensaries and their physicians; that too many people, who are able to pay for the necessary care and treatment, resort to the free clinics; that in consequence of this custom the intention of the founders and supporters of these institutions is violated; that the physicians are wronged by being required to give their time, strength and skill to those who can well afford to pay for them; that the outside physicians are being robbed of legitimate work which they are fully competent to do; that the deserving poor are crowded aside, and deprived of that prompt and efficient service to which they are justly entitled by the intention of their benefactors; and finally, that as this abuse has become flagrant in many instances, and is increasing, the time has come when an earnest effort should be made by the profession to correct, in some measure, the present unfortunate state of affairs.

The general public, and doubtless many physicians, have no adequate idea of the enormous amount of gratuitous work done in this city every year by our profession. Will you allow me to present a few details on the subject, taken principally from official sources, and therefore assumed to be reliable?[1]

There are about 75 hospitals and dispensaries in this city for the care of the injured and ailing, and apparently more to come in the near future. Some of them are private, and do no charity work; others furnish both free and paid service while the remainder are devoted entirely to the care of the poor and destitute, who are unable to pay for the services they need.[2]

It is of public record that upwards of 300,000 persons received practically free treatment in Boston last year (1903), a number equal to about one half the entire population of the city.

In Philadelphia[3] with its 60 hospitals and as many dispensaries, more than one fifth of the population are annually treated as charity patients, while in New York, which has about 90 hospitals, and nearly as many dispensaries, one fourth of the people receive practically free treatment every year.

It is not claimed that one half of the actual residents of this city resort to the hospitals and dispensaries every year for free treatment, as many of the patients come from out of town. Yet, after making a liberal allowance for this fact, the large number of patients who apply for relief at our free clinics is a matter not only of surprise, but for regret. Boston is said to be one of the richest cities, *per capita*, in the country, and yet the percentage of charity patients to the total population is apparently larger than it is in New York or Philadelphia.

Granting that these statements are fairly correct, we must conclude one of two things: either that there are many more worthy poor in our midst than we had reason to suppose, or that a

*Read at a meeting of the Medical Library in conjunction with the Suffolk District Branch of The Massachusetts Medical Society, Jan. 11, 1905.

[1] Boston Directory: Annual Report of State Board of Charity of Massachusetts, 1903. Reports of Hospitals for 1903, etc.

[2] Patients paying from ten to twenty-five cents for a visit or a prescription are properly charity patients. This custom of charging a small fee is quite common, and becoming more so. Some dispensaries are thus self-supporting.

[3] Franklin B. Kirkbride, Esq.: "Some Phases of the Dispensary Problem."

considerable number of unworthy persons have received the benefits of these clinics, unworthy by reason of their being able to pay for that which they got for nothing.

Will you indulge me in a few more statistics? Over 72,000 persons (72,869) received treatment last year in the various departments of the Boston City Hospital; about 12,162 were house patients, and 60,730 were out patients. This institution is supported by the city, and comprises 36 buildings, an equal number of wards, and contains 935 beds. There are 81 physicians and surgeons on its staff, 47 house officers, and 206 nurses and orderlies. The appropriation last year was $476,800.

Two hundred and thirty-two thousand eight hundred and ten days' board and medical attendance were furnished the house patients, and the out patients made 134,276 visits to the hospital for advice and treatment. Forty-two hundred and eighty-three persons received attention in the accident rooms. Twenty-three hundred and forty-five operations were performed upon the house patients during the year and an unknown number of minor ones upon the out patients. More than 1,100 fractures and dislocations, nearly 200 of which were compound, were treated during the period under consideration. And this by no means comprises all that is done for the sick poor by the city every year, as they receive treatment in several other institutions.

At the Massachusetts General Hospital more than 36,000 (36,601) persons were treated last year (1903). House patients, 5,341; out patients, 31,260. Forty-six hundred and thirty-five were attended to in the accident rooms. More than 3,000 (3,106) operations were done upon the in-patients, and a very large number upon the out patients. One hundred and nine major amputations were performed, and the peritoneal cavity was opened for various purposes nearly 900 times, an average of between two and three laparotomies for every day in the year. For doing this and a great deal more very important work the staff receives no direct compensation, no fees or salary.

Over 40,000 patients (40,779) received free treatment at the Boston Dispensary last year. Many minor operations were performed, and about 150 cases of confinement were attended.

At the Carney Hospital 37,598 patients were treated, and a large number of very important operations were done. Twelve thousand nine hundred and twenty-two persons received attention at St. Elizabeth's Hospital. Thirty-four thousand and thirteen cases were treated at the Massachusetts Charitable Eye and Ear Infirmary, and over 6,000 (6,028) operations were performed. Twenty-two thousand and ninety-one patients are reported from the Massachusetts Homeopathic Hospital and Dispensary. Seventeen thousand one hundred and fifty-two from the Suffolk Dispensary in Charter Street. Nearly 8,000 were treated at the Children's Hospital, and the operations were nearly 1,000 for the year. About 6,000 were treated at the New England Hospital for Women and Children, and 2,519 at the Lying-in Hospital.

To this large number of patients must be added those treated at several smaller hospitals and dispensaries, which would swell the grand total to 300,000 or over, who received practically free treatment at the hands of the profession in this city last year.

For obvious reasons the above enumeration makes no account of the considerable amount of charitable work done by every physician in his private capacity, nor would it be easy to convey to those not familiar with the subject any adequate idea of the enormous amount of special work done in the wards of our hospitals, or in the numerous special departments, as gynecological, orthopedic, obstetric, eye and ear, nose and throat, nervous system and skin, x-ray, in pathology, bacteriology, medical chemistry, etc. The effort to comprehend it all in so short a space of time is bewildering, and even this brief and necessarily fragmentary narration must be a severe trial to your endurance.

A pretty careful estimate of the commercial value of this large amout of work in dollars and cents at the rates usually charged for such services in this community would amount to between eight and ten millions of dollars annually.

For doing this immense work the physicians receive no direct compensation whatever, in the way of fees or salaries. They give their services faithfully and freely for the care of the deserving poor without regard to race, color, creed or condition. They are the main factor in carrying on the largest and most important charitable work known to modern civilization. The consciousness of being a helper in this great work affords a keen satisfaction to the high-minded physician. It stimulates his ambition, enlarges his interest in life and its duties, and makes him a broader and better man.

But as time goes on, and hospitals and dispensaries increase and multiply, the conviction has grown deeper and stronger than the Profession is being imposed upon; that we are called upon to do altogether too much work under the guise of charity; that many of our so-called charity patients are as able to pay for professional services, as for any of the ordinary necessities of life. By seeking free treatment the well-to-do people impose upon the institutions; they receive benefits to which they are not justly entitled, they filch the time, strength and skill of the medical attendants, and finally they defraud that profession without whose services there could be no medical charity.

To get the sense of the profession as to the prevalence of abuse of medical charity the writer recently sent a circular letter containing six questions to over 400 physicians, a large proportion of whom reside in Boston and vicinity. An effort was made to get the opinion of physicians of both sexes, of all schools, and of all the different social and professional circles.

The interest manifested in the subject is made evident by the fact that replies were received

from more than three quarters of the correspondents, and the writer begs to extend his warmest thanks to all those who took the trouble to reply to his questions, and he is particularly grateful to a large number who took especial pains to give their experience and opinions at length with a view to aiding in the solution of the many difficult points at issue.

The following is the result of the canvass:

(1) In your opinion is medical charity abused in the hospitals and dispensaries in this city?

One gentleman, not in active practice, answered in the negative, two replied "not much"; and 302 answered in the affirmative! The most emphatic replies came from the family physicians of the middle classes, who are in a position to know the financial condition of their neighbors, that apply to the free clinics; from the physicians and surgeons who do the work in the hospitals and dispensaries; and from the specialists. The unanimity of opinion upon this point is noticeable, and must be accepted as the settled and profound conviction of the profession.

(2) Do you think any plan for the correction of such abuse, if it exists, is practicable?

Eleven thought not; 16 were doubtful, and 258 thought it feasible.

(3) Do you think that our hospitals and dispensaries should have some form of inspection with a view to excluding those patients who are able to pay for professional services?

Three said no; 5 were uncertain, and 304 favored some form of inspection to prevent the present indiscriminate treatment of all who apply without regard to deserts or necessity.

(4) Do you think that physicians who give their services to the poor should be required to treat the well-to-do and rich patients in hospitals and dispensaries for nothing?

Ten said yes; two were doubtful; 310 said no, and most of them said it emphatically.

(5) Do you think that patients who are able to pay for a private room in a hospital should, *as a rule*, pay the physician who takes care of them?

Eighteen said no; 4 were doubtful, and 295 said yes.

(6) If you think that medical charity is abused in this vicinity, what measures would you suggest for its correction?

As might be expected, the replies to this question varied much as regards details. A considerable number favored the plan of having a central clearing house through the Associated Charities, as has been so ably advocated by Dr. Clarence J. Blake. More perhaps perferred the method in vogue in other places of requiring the applicants to bring a voucher in the form of a card or note from a clergyman, physician, employer or some well-known person or organization.

While differing somewhat in relation to details, the opinions of our correspondents were overwhelmingly in favor of some sort of inspection or supervision by a kindly, judicious, tactful person employed by the administration. It is evident to most of us that this work should form no part of the duties of the attending physician; for, as a rule, he has neither the time, disposition, nor requisite qualifications to do it in a proper manner. It belongs to the admitting physician, or to some one intimately connected with the executive. The work should be done according to some general plan as thought out and agreed upon by all the larger institutions. It is only in some such way as this that fairly satisfactory results may be expected in this direction.

The evidence would seem to justify the conclusion beyond all question, that medical charity in this vicinity is abused; that the physicians are called upon to do too much gratuitous work for people who are able to pay for it; that the evil is increasing and that it in all probability will continue so to do, until some earnest, combined, persistent efforts are made by the profession to check the pernicious tendency of the present day.

Injustice to the profession comes principally from two sources, namely, from well-to-do people occupying private rooms, and paying nothing for professional services; and secondly, from those out patients, who are able to pay for the necessary treatment.

1. HOUSE PATIENTS.

Last year the Massachusetts General Hospital collected about $75,000 ($74,538.20) from patients treated in its various departments. This sum is nearly one third of the total expense of carrying on the institution, and is evidence of excellent management on the part of the trustees and superintendent. Three hundred and sixty-two persons paid from $21 to $35 a week for board and nursing, amounting in the aggregate to $8,594.20. *They paid nothing for professional services.* The physicians and surgeons who performed this great amount of skillful and important work received nothing. The staff of this hospital, composed of some of the leading men in the profession, are not allowed to collect a fee from patients in private rooms, or in any part of the institution, under any circumstances whatever. The hospital is absolutely free, so far as the services of the staff are concerned. It protects itself, however, by demanding payment in advance for board and nursing of all who are able to pay even a small amount. The rule is, that all must pay something, if they are able. This is as it should be, but why should not the attending physicians and surgeons be paid a moderate fee for their attendance upon these patients? No one can deny for a moment that the professional services are by far the most important and valuable asset these patients receive from the hospital, and yet they pay absolutely nothing for it. In fact, the professional service is their principal object in going to the hospital. If these private-room patients are able and willing to pay the doctor for his services, as doubtless many of them are, or should be, what good reason can be given for their not doing so? The hospital would lose nothing thereby, as has been proven over and over again in other institutions. In proper cases it would be no hardship to the

patients, and would redound to the credit of the hospital, and the satisfaction of the whole profession.

The injustice of the present custom at this institution was well illustrated a few years ago in the experience of one of our most prominent surgeons. A clergyman from the country brought a woman to the doctor to have her breast removed. Arrangements were readily made for her to go to a hospital, take a private room, and have the operation performed at a certain time. The fee agreed upon was satisfactory to both parties, and everything seemed to have been harmoniously arranged. A few days later the minister called upon the doctor, and told him that having heard that the patient could go to the Massachusetts Hospital and have the operation done for nothing, she had done so, and therefore his services would not be required! Several similar cases have come to the writer's notice, showing that the public understand the matter and are not slow to take advantage of it. As human beings are constituted, these people can hardly be blamed for dodging fees in this manner, but what shall be said of a system that allows the profession, one of the principal benefactors of the institution, to be treated in this ungrateful fashion?

It would seem that people who can pay from three to five dollars a day for a room should certainly, as a rule, pay a moderate fee for professional services. Such at all events is the general custom all over the country, and the writer cannot but think that many of these patients would be glad to do so, if they but realized the fact that their medical attendant received no salary or other direct compensation from the hospital, but was serving them upon precisely the same terms, that he did the poorest and most degraded patient in the common ward.

To claim that the privilege of collecting a fee under proper regulations from well-to-do patients occupying private rooms in our public hospitals would be abused, is not only casting reflection upon the members of the staff, but also upon the judgment and discretion of the trustees themselves, as being responsible for the rules and for the appointments. Why should any considerable number of the most honorable, upright, conscientious members of the profession be made to suffer from the misdemeanors of some one person, whose methods are remembered only to be condemned, as they so richly deserve? We believe that the principle of treating well-to-do people for nothing is wrong, and that the practice is worse.[4] And such is the opinion of the Profession at large all over this country.

For many years the Trustees of the Boston City Hospital have courteously granted the members of the visiting staff the privilege of treating private patients in private rooms of the hospital under certain restrictions, and charging for services, as in their homes or elsewhere. There is a definite understanding as to the rates of the two parties, and the hospital charges are always paid first.

So far as the writer knows the plan has proved advantageous to all concerned. The privilege has never been abused, nor would it be easy under the rules and regulations of the hospital to take undue advantage, were any one so disposed. A great deal of money has in this way been turned into the city treasury without entailing hardship upon the patients, and injustice to the attending physicians has by so much been averted. Having private patients in the hospital, members of the staff have naturally made more and longer visits, the ward patients have thus received more attention, and the interests of the institution have been benefited by this wise regulation of the trustees.

Members of the visiting staff, however, are not allowed to collect a fee of patients, who engage a room directly from the superintendent's office without a previous interview with the attending physician, even if they are able and willing to make such remuneration. While the abuse from this practice is not flagrant, yet the principle is wrong, as it tends to encourage the unprincipled to take advantage of the profession. It would seem as if the physicians and surgeons of this great institution did gratuitous work enough in taking care of the tens of thousands of worthy poor every year to justify their being excused from treating the well-to-do for nothing! With justice to all and hardship to none the question of remuneration to the physician might well be left in the hands of the superintendent, as is done in other places with such general satisfaction.

The Massachusetts Homeopathic Hospital is conducted upon correct business principles, the physicians sharing with the hospital in whatever remuneration the patients are able to pay. All patients occupying private rooms and paying $15.00 a week, or over, must pay the attending physician a reasonable fee, which is to be agreed upon in writing before entrance, and filed with the superintendent. Furthermore, any member of the staff may take a private patient to the hospital, and if he pays over $7.00 a week for his board, the physician is at liberty to charge a fee for his services, but it is to be paid only after the hospital charges are settled. This plan seems just and right, and ought to satisfy all parties. The patients pay for what they receive, and the physicians feel that they are not being imposed upon by giving away services for which they ought to be remunerated.

The Carney Hospital, as regards private room patients, is managed upon the same general plan, as shown by the following rules:

"Patients who can afford to pay for the services of a surgeon are expected to do so, and they shall make arrangements with the surgeon before the operation. Those who cannot afford to pay the surgeon for his services will receive the same free of charge.

"All patients in private rooms or in private

[4] A former Trustee of this hospital recently told the writer that the custom in vogue there was wrong, and that it ought to be changed.

ward beds will be expected to pay the surgeon a fee."

As a rule patients occupying a private room at St. Elizabeth's Hospital are required to pay the attending physician. In all hospitals a patient is occasionally able to pay for the room, or his friends can do it for him, but they could not do any more than that, without making an unnecessary sacrifice. No physician would for a moment object to taking care of such patients without a fee. Our contention does not apply to this class, as they are very often the most deserving of charitable aid, and are most appreciative of all that is done for them.

Members of the staff are allowed to put patients into the private rooms of the New England Hospital for Women and Children, and charge a fee for professional services, provided they pay $15.00 a week or over for board and nursing. They are not allowed to charge private room patients a fee under any other circumstances.

At the Free Hospital for Women, applicants are required to fill out a blank stating among other things, the amount of property owned, income of family, number of dependents on same, rent paid, assistance received from relatives or friends, etc. No patients able to pay even a moderate fee are received, as the Instituiton is devoted entirely to the poor.

Permit me to call your attention to what has been done in other places in this matter. Personal correspondence with the superintendents of several of the largest hospitals in New York, Philadelphia and Baltimore reveals the fact that patients occupying private rooms in the public hospitals in those cities are given distinctly to understand, that they must pay the attending physician for services rendered, except, upon investigation, the superintendent decides otherwise.

The rules and regulations in effect at the Roosevelt Hospital may be taken as a type of those in vogue in all the larger New York hospitals. They are as follows:

Upon the card giving the " Room Rates " is printed the following notice:

" It is expected that occupants of private rooms will pay the member of the Visiting Staff, whose professional services are given, a fee to be agreed upon before admission, or upon the first visit of the doctor."

The following is copied from the rules of the Trustees:

" The members of the attending staff give their professional services to the hospital without salary under the following conditions:

"(*a*) They will not receive professional fees under any circumstances fromany patient occupying a bed in the wards of the hospital, neither will they expect or receive such fees from any patient applying directly to and received in the hospital for accommodation in a private room, provided that in the opinion of the superintendent, ability does not exist on the part of such patient to pay for professional attention given besides paying the hospital charges for board and nursing.

" (*b*) It is expected and required that the member of the attending staff, who recommends a patient for admission to a private room, shall make definite arrangements regarding his professional fees before such patient enters the hospital.

" The designof the foregoing rules is to protect the hospital authorities and attending staff from any misuse of their charitable services."

Practically the same rules are in force at the Presbyterian, the St. Luke's and the New York hospital. Bellevue Hospital has no private rooms.

Franklin B. Kirkbride, Esq., Secretary of the Polyclinic Hospital in Philadelphia, writes as follows: " As far as I know, all hospitals in this city, which have private rooms, permit their physicians to charge fees for their services, although there may be instances where, owing to to special circumstances, the patient is treated free." The rules of the Pennsylvania Hospital are precisely like those of the Roosevelt in New York.

Patients occupying private rooms at the Johns Hopkins Hospital, as well as the other large hospitals in Baltimore, are also required to pay for professional services.

Dr. Alexander Davidson, Surgeon to St. John's Hospital, Toronto, says that " patients occupying private rooms in our hospitals are most undoubtedly expected to pay for their professional services." Dr. James Bell of the Royal Victoria Hospital, Montreal, says that the same practice prevails in the hospitals of that city. Sir William Hingston of Montreal also makes the same report. To this list may be added the hospitals in Albany, Troy, Syracuse, Rochester and Buffalo.

Dr. Nathan Jacobson of Syracuse, N. Y., writes that they have in that city two general hospitals, one for women and children, and one homeopathic hospital. A few years ago the doctor inaugurated the " Syracuse Hospital Association," composed of five representatives elected annually from each of these four hospitals, and these 20 persons constitute an executive board, which meets once a month.

There exists now in all the Syracuse hospitals, as a result of this association, the same classification of patients, the same conditions of admission, and, as far as possible, each of the respective groups of patients has the same privileges.

They have three classes of patients: (1) Private patients, each occupying a room for which he pays from $15.00 to $30.00 per week. He selects his physician and pays him, as he would outside the hospital. (2) Private ward patients, who are placed in rooms of two to four beds. They are charged from $8.00 per week upwards, can choose any physician on the staff, and must pay him for his services. The only patients who receive gratuitous treatment are some of the general ward patients. They are required to pay $6.00 per week, if able, or, if they have a legal residence, the town or city is required to pay this sum. Those having no legal residence are treated free. The result of this

plan is that nearly all of the hospitals are upon a paying or self-supporting basis, and all are well patronized by the profession. This plan seems to be a good one for the smaller cities, and is worthy of consideration by the larger ones.

The writer has obtained information upon this subject of private-room patients from 38 hospitals in Massachusetts, outside of Boston, and finds that 35, or all but 3, allow members of the staff and often other physicians under certain conditions to have patients in the private rooms, and charge for services, as they would in their homes or elsewhere. The following hospitals in New England, twelve in number, also grant this privilege to the staff, namely, The Rhode Island, and St. Joseph's Hospitals in Providence, the Homeopathic in New Haven, the St. Francis' in Hartford, the Nashua Hospital, three hospitals in Manchester, N. H., the Margaret Pillsbury in Concord, N. H., the Maine General in Portland, the Elliot City in Keene, and the Mary Fletcher Hospital in Burlington, Vt.

By way of summary it may be said that of 52 hospitals, that have been heard from in New England outside of Boston, only five refuse to allow the members of the staff to collect fees for professional services from the occupants of private rooms under any and all circumstances. These hospitals are located in Cambridge, Worcester, Lynn, New Haven and Hartford.

The only general hospital known to the writer in Boston that refuses to allow members of its staff to receive compensation for professional work done in the institution is the Massachusetts General Hospital. The writer cannot but think that if these trustees were to inaugurate a hospital at the present time, independently of the customs and traditions of the past, they would adopt the modern methods, as being more just and business-like for all concerned. They naturally hesitate to make any radical departure from methods hallowed by long usage, but it would seem that gradual changes for the better in these matters could be discreetly brought about without unduly disturbing those most interested in the success of the institution.

From these investigations it is clear that the governing bodies of our hospitals and dispensaries generally recognize the rights and courtesies due to that profession, whose gratuitous labors are so indispensable to the success of their undertakings. A reasonable consideration of the proper revelations of the hospital physician and the hospital public can but increase the interest and efficiency of the hospital trustees and physicians and also conduce to harmony and a feeling of mutual confidence and respect.

It is the opinion of many physicians that public hospitals should have no private rooms, and should receive no private patients; that patients able to pay a professional fee should go to a private hospital. The theory is all right, but the private rooms are here and here to stay. A few are not only useful, but very essential to every well-equipped, up-to-date hospital. Only let them be conducted upon a fair and business-like basis, and no reasonable objection can be made to them.

Private hospitals, open to all respectable physicians, have become a necessary factor of modern civilization. They afford an admirable refuge for the well-to do in time of need, and should be encouraged and faithfully supported by the profession and the public. They not only relieve the public hospitals, but they furnish better facilities for the care of many affections, especially surgical, than can be found in the ordinary home. As regards time, modern surgery consists largely in getting ready. The hospital is always ready, the home never. Furthermore, in many instances it is much better for all concerned to remove the patient to the hospital, as can now be so easily done with the coupé ambulance, than to turn the house upside down in making it a temporary hospital. Properly conducted, the private hospitals are a blessing to the community, and a convenience to the profession.

2. OUT-PATIENTS.

We now come to the consideration of dispensaries and out-patient departments.[5] The number of persons treated annually in these clinics runs into the hundred thousands. By reason of the absence of any concerted measures for the exclusion of the unworthy, it is the opinion of nearly every one, who is personally familiar with the work — physicians, superintendents, supervisors, nurses and attendants — that a certain proportion of these patients are well able to pay for the necessary attendance. Not a few admit that they can pay a moderate fee, but for various reasons they apply at the hospital, rather than to a physician, not knowing, perhaps, that they could get much better service from the same physician by applying at his office. Very many patients apply at these clinics solely to avoid a fee. They see no harm in so doing, as others do it continually, and why should not they? Socialism, hard times, the temptation to get something for nothing, and many other influences send many persons to the dispensaries, who have no good reason for depending upon charity. Every family physician knows of patients who are perfectly able to pay for necessary services, and yet depend upon charity for their medical treatment. This ought to be stopped, and it can be to a great extent, as will be shown later in this paper. How is it to be done?

The most effectual method known to the writer is by some form of inspection. True, it is expensive, but do you not suppose that the founders and supporters of these charities would rather a portion of the funds should be expended in self protection, in guarding the benefits, than in bestowing them upon the unworthy and undeserving? No such loose methods obtain in the management of house patients, why should they be permitted to continue to an unlimited extent in the dispensaries? It is the opinion of the

[5] These terms are synonymous in this paper.

profession that a reform in this matter is very essential for all concerned.

Much has been done in other places to correct the "dispensary evil," and it is well worth our time and attention to consider the methods and their results. And first let us see what is being done at home.

The method of inspecting out-patients, which has been in use for some time at the Massachusetts General Hospital, is admirable, and except for the fact that it does not include house visits, is probably as good and efficient as can be expected at present. The inspection is made by the assistant superintendent, or some one representing the administration. As witnessed by the writer the investigation was conducted in a simple, matter-of-fact manner, without friction or excitement, and was productive of excellent results.

On entering the rotunda of the building each new patient was sent to the inspector, who asks the name, address, occupation, number in family, wage-earners and dependents, income, rent, name of family physician, and perhaps the reason for applying at the hospital, etc. A judicious and experienced inspector can very soon decide as to the fitness of the applicant to receive charity. The worthy ones are sent to another table, where they receive a card for the proper department, which is their future passport to the hospital.

To those who were thought able to pay for the necessary services, the purposes of the hospital were explained in a few words, and they were kindly advised as to the best course to pursue; whether to return to their own physician, if they had one, to apply to some one in their neighborhood, or to one of the staff, etc., as seemed best to the inspector.

A case in point came under our observation. A commercial traveler from the western part of the State applied for the opinion of an expert in regard to his enlarged glands in the neck. As he was perfectly able and willing to pay for advice, he was given the address of a member of the staff, and he went his way satisfied at having received all he could reasonably expect, and all he was justly entitled to. It is difficult for a physician to understand why he should be called upon to give his services to scores of similar persons for nothing, simply because he holds a position upon the staff of a charitable institution.

The inspection at this hospital was conducted with such admirable tact and discretion, that no one having the least claim upon charity could find any grounds whatever for complaint. Every one received kind and considerate attention, and was advised what to do to obtain relief. It goes without saying that all doubtful cases, emergencies, sudden or severe illnesses, and accidents receive prompt and skillful attention. Humanity is never lost sight of. It is only those who are not worthy of charity by reason of being able to pay for treatment that are affected by this safeguard. That the plan does much good is shown by the fact, that from none to 12 or 15 persons are referred elsewhere daily, as not being proper objects of charity.

The trustees of this most excellent institution merit the cordial appreciation of the whole profession for inaugurating this efficient system of inspection in their out-patient department, and it is to be hoped that the time is not far distant, when the rules applying to their private-room patients may be modified to correspond to the best sentiment, as well as the best business principles, of the present day.

Dr. Farrar Cobb, the able Superintendent of the Massachusetts Charitable Eye and Ear Infirmary, has developed a system of inspection, which has been partially effective. The trustees in response to earnest representations of Dr. Cobb and the staff are considering a plan for making the inspection more thorough by means of a specially trained inspector whose sole duty shall be to adequately sift the applicants for treatment in a proper manner. Members of the staff are not allowed to act as inspectors, although they may refer suspects to the superintendent's office for further investigation. His decision, however, is final, as it should be. On an average about 20 patients are interviewed daily, and about a thousand are refused treatment annually, as being able to pay for needed services.

House patients are required to pay $6.00 a week, or such portion of that amount as they are able. Half of the patients are unable to pay anything. All patients able to pay over $6.00 a week are sent elsewhere, as the institution is for the poor only. Members of the staff are not allowed to charge private patients a fee under any circumstances. Those able to pay a reasonable fee, or otherwise unsuitable applicants, are handed a list of the surgeons and assistant surgeons with their addresses, and are dismissed in a kindly manner, the reasons for such action having been carefully explained to them.

The out-patient clinic at the Children's Hospital is very large, and the character of the work very important. Patients come from long distances to obtain the services of its justly celebrated staff. A careful system of inspection is carried on by the bookkeeper, who has been there a good many years. She makes careful inquiry into the occupation and financial condition of the children's parents, those that are able to pay for treatment being given the names and addresses of two or more of the younger members of the staff, and referred to their offices for advice and treatment. They are refused treatment at the free clinic, which they are told is for the poor and destitute only.

The out-patient service at the Boston City Hospital is simply enormous, the attendance at the surgical clinic alone averaging over 200 daily. Last summer the city government requested the trustees to keep the out-patient departments open from nine to two, and from six to seven in the evening! Under these regulations it would be interesting to know when the out-patient physicians would have a chance to earn their bread and butter! Thus far the request has not been complied with.

There being no inspection at this institution

the result is that in the opinion of the staff the clinic is abused to an extent varying from 20 to 25%. A few years ago one of our leading surgeons investigated 500 patients in the surgical out-patient department as to their ability to pay some sort of a fee with the following results: Accidents and emergencies, about 10%; worthy poor, about 40%; not deserving of charity, about 50%. Recently one of the physicians to out-patients interviewed 100 women for the same purpose, and came to the conclusion that 20% were undoubtedly able to pay a reasonable fee for needful services; as many more were doubtful, and about 60% were deserving of charity.

The Boston Dispensary with its army of patients has no system of inspection or exclusion, although the able superintendent, Dr. E. O. Otis, is of the opinion that some general plan, agreed upon and adopted by all the dispensaries, would do considerable good in correcting the evil in question.

So far as known to the writer, no other dispensary in the city has any system of inspection in use looking to the exclusion of the unworthy from the clinics. A good deal has been done in other cities to diminish the abuse of medical charity in the dispensaries, a brief consideration of which will now engage our attention for a few moments.

According to the Annual Report of the State Board of Charities for 1898, more than one million persons received free treatment at the New York dispensaries in 1897. These facts "show very clearly that some concerted effort, aided by competent legal authority, should be made to prevent too free distribution of medical relief, with its pauperizing tendencies, which are detrimental to the State's best interests." (Pp. 18 and 19.)

After some years of agitation of the matter, the present "Dispensary Law" was enacted by the New York legislature in 1899, making it a misdemeanor, punishable by fine and imprisonment, for anyone to obtain medical and surgical treatment on false representations from any licensed dispensary in the State. This penalty is not only posted in a conspicuous place in the reception rooms, but is printed on the pass cards, that are to be presented at the entrance to the dispensary.

When the law had been in effect a little over three years, Dr. Stephen Smith, Chairman of the Committee on Dispensaries of the New York State Board of Health, stated, that "the great increase in the dispensary attendance shown in the past years had been materially checked."[6]

Mr. W. B. Buck, Superintendent of Inspection, State Board of Charities, reports a very favorable condition of the effects of the law.[7] The rules adopted by this body require that every licensed dispensary shall haye an officer, register, as he is called, who shall receive and examine every applicant as to his ability to pay for treatment. If in doubt the applicant may be asked to sign a statement as to his financial condition, and upon his refusal to do this he may be denied aid, if not urgent. The law and rules are very well carried out according to the inspector, whose business it is to look after this work. The only one of the 34 requirements in the rules, that is neglected to any extent, is the one prescribing investigation of the doubtful applicants between visits.

This law, in charge of an active judicious inspector, can but have a most beneficial effect in curtailing the abuse of the charities.

Correspondence with the superintendents of five of the largest hospitals in New York shows that they have a system of inspection in use for the correction and prevention of the "dispensary evil." Dr. C. Irving Fisher of the Presbyterian Hospital, Dr. Lathrop of the Roosevelt, Dr. Mabon of Bellevue, Dr. Ludlam of the New York, and Rev. George F. Clover of St. Luke's, — all report that the out-patient departments in their respective institutions are inspected more or less carefully by a representative of the administration. Those patients who are able to pay are sent to a physician's office. The doubtful ones are requested to bring a recommendation from a responsible party, sign a statement, or they are reported to the Charity Organization Society for investigation.

Inspection in some form is in use in about half of the dispensaries in Philadelphia, and is the rule in some, if not all, of the dispensaries and hospitals in Baltimore.

The most thorough and satisfactory system of inspection of out-patients known to the writer is one that has been in use at the Rhode Island Hospital in Providence for six or seven years, under the able and efficient management of Dr. John M. Peters, from whose admirable paper I beg to quote somwhat freely.[8] Briefly stated the plan is as follows:

Displayed prominently opposite the entrance is a large placard stating, among other things, that the services of the physicians in attendance are given free, and are for the poor only. Patients who are able to pay a physician will not be treated in this department, except in case of recent accident, emergency or sudden illness. All patients wishing to receive treatment should bring a letter of recommendation from some physician in good standing, from the agent of some charitable institution, or from some person known to the inspector. If the patient does not bring such a letter, he is requested to sign a statement that he is unable to pay for professional services, and that he desires charitable aid.

Many patients leave the building on reading this notice; others speak to the officer in charge, and are referred to a physician in their vicinity. Each of those admitted is taken into a private room, and quietly and politely questioned as to his position in life, his business, wages, number in family, number of dependents and wage-earners, family physician, reason for applying at the hospital, etc. The agent has the tax books of all the cities and towns in the state, and consults

[6] "Charities," August 29, 1903.
[7] "Charities," Jan. 14, 1905.

[8] Results of Six Years' Experience in Checking Dispensary Abuse at the Rhode Island Hospital. National Hospital Record.

them frequently. He also consults directories, employers, physicians, etc., in short uses every means to find out as much as possible about the doubtful applicants. Of course, many cases are self-evident, and are admitted without much ceremony. If the answers are not satisfactory, and the case not urgent, the patient is asked to come again with a letter of recommendation. In the meantime the agent looks him up by making personal inquiries, visiting his address, etc. Occasionally he finds a wrong address, a vacant lot, or some other condition leading to the suspicion of deception. Under these circumstances the applicant is not likely to receive much aid at that institution.

To quote from Dr. Peters' paper, "This position of agent requires a man of patience, knowledge of human nature, politeness, firmness and especially a man of tact.

"This system has been in vogue for the past six and one-half years, and while at first there was some criticism from employers and from friends of patients, yet when the nature and justice of the system was explained to them, and since the knowledge of it has spread abroad, there has been practically no complaint from any source. In all cases our agent is obliged to give the patients the benefit of the doubt, at least for the first treatment. This system has been followed out practically as described, and we think we have corrected to a large degree what we started out to do. There can be no question but what the abuse has been lessened. Complaints from physicians not connected with the hospital are few in number; our own staff are content in that they are not asked to question patients, and are not obliged to treat patients evidently able to pay. The worthy poor receive better and more prompt attention with the decrease of the size of the clinic. We are not helping to pauperize."

Such in brief is the plan, as described in Dr. Peters' most interesting paper. Now what are the results? During the six and a half years under this system 35,742 patients passed through the hands of this agent. Six hundred and four were rejected because they owned real estate of an assessed valuation of of $2,247,128, or an average of nearly $4,000 each. Three hundred and sixty-three married men were rejected, whose average weekly wages were $18.13. Seven hundred and fifty-three were rejected because in the opinion of the agent their wages were sufficient to allow them to pay for the services of a physician. During the first six months the system was in use the applicants fell off 40%. "The knowledge that the applicant will be subjected to a rigid questioning undoubtedly keeps many unworthy ones away. The moral effect is good." During the second six months of the system the number of worthy applicants remained about the same as previously, while the rejected had fallen off 50%, as the plan became better known.

Allow me to conclude this extended abstract in Dr. Peters' own words: "I firmly believe that if representatives of all such institutions in any city could come together and agree on this or some other system, and have it conscientiously carried out by men of tact, this abuse can be checked or controlled even in the large medical centers."

In the light of all this evidence the writer can but conclude that the profession has it in its power to bring about an improved condition of affairs in this city, as has been done in other places, if we set about it in the right way and persist in our efforts.

The trustees and managers of our medical charities invite the profession to assist them in carrying on the largest and most important charitable work in the world. Without our assistance it could not go on for a single day. We are asked to perform this enormous amount of labor for nothing, *i. e.*, for no direct compensation in the way of fees or salaries. Aside from the satisfaction of relieving pain and saving life, our sole recompense comes in the form of enlarged experience and reputation. While these are valuable considerations, I submit that they do not justify unlimited neglect or defiance of the ordinary economic laws that obtain in all other occupations.

It seems to the writer that we must look to three sources for relief in the matter in hand, namely, to the public; to the trustees and managers of our medical charities, and to the profession at large.

1. THE PUBLIC.

The public should be educated to the following facts: These institutions are designed and supported for the poor and destitute, who cannot afford to pay for the necessary treatment. The profession give their services freely and willingly, and without pay, to this class of patients. They are treated kindly, faithfully, skillfully and with due consideration, as is usually shown our private patients. The hospital physician gives the best part of his time, strength and skill to his charity patients. He is subject to their calls at all hours of the day or night. He may get some one to respond to his private patients, but he is expected to do his hospital work himself. He alone is held responsible for its proper performance. He constantly exposes himself to the risks of contagion, blood poisoning, and all the accidents incident to his profession, not even excepting suits at law for malpractice!

By taking the time and strength of the hospital physician the well-to-do people are not only wronging him, but they are depriving the worthy poor of that prompt and efficient service to which they are justly entitled. Paying taxes no more entitles one to free medical treatment than to free water, gas or any other ordinary commodity. In short, getting something for nothing demoralizes the individual, and encourages deceit, laziness and pauperism.

2. THE TRUSTEES.

The trustees of our medical charities can do a great deal towards checking abuse by making and enforcing two general rules, as follows:

(1) All patients occupying private rooms in our hospitals shall be required to pay the attending physician a fee for professional services, unless excused from so doing for good and sufficient reasons by the superintendent, or other representative of the administration.

(2) Out-patients shall be inspected and required to show in some way that they are worthy objects of charity. That those patients who are able to pay something, even a small fee, shall be refused free treatment under ordinary circumstances, but shall be directed and advised as to the best course to take to get relief. It goes without saying that accidents, emergencies, etc., are to receive prompt and humane care without question until the stress is over. Common humanity is not to be interfered with by any set rules or restrictions. We are only attacking flagrant and unmistakable abuse and imposition, and are in favor of giving the patient the benefit of any doubt in all cases.

In view of the facts, as herein set forth, is it presumptuous on our part to ask the trustees of these institutions to protect the hospital physician from wasting his time, strength and skill, his capital in life, upon those who have no right to them, and hence do not deserve them? And furthermore, to ask them to show due consideration for the outside or family physician by refusing to allow the well-to-do people to obtain free treatment at the institutions under their charge? We ask for no more. How can they in reason and justice grant us less?

3. THE PROFESSION.

And finally, as the profession is more or less responsible for the present state of affairs, and as no marked improvement is to be expected without strenuous efforts on our part, it behooves us to consider the matter pretty carefully, that we may get at the causes, and thus be enabled to act intelligently to secure an improvement.

Patients able to pay a fee apply for advice and treatment at our hospitals and dispensaries for various reasons. Many are ignorant of the objects of the institutions, or are thoughtless of the fact, that they are intended for the poor only. Some are strangers, and naturally think that they will find the best talent at these public institutions. Others think that they will receive more skillful treatment, than they would expect from a private physician. Not a few wishing the services of a specialist, and thinking that they cannot pay his fees, resort to the dispensary, not being aware of the fact that the specialists, like all physicians, have a sliding scale of fees, a custom that is as old as the profession itself.

The patients may have got tired of their physician, or he may have got tired of them, or from the nature of their disease they may not be making the progress that is desirable, and instead of seeking help in the proper manner, they go or are sent to the charity. It is a common impression that the hospital doctor receives a large salary, and is therefore indifferent as to whom he treats. This is particularly true as regards municipal institution. No other large class works for the city for nothing, and the ordinary citizen cannot understand why the doctors should. Such, however, is the fact, and it should be made known in justification of this movement for reform.

A good many patients from outside the city apply for advice through ignorance and thoughtlessness (?); as was shown in the experience of one of our leading oculists some years ago.[9] Upon a certain day he noticed that a number of apparently well-to-do people from an adjoining state appeared at his clinic at the Eye and Ear Infirmary. Investigation revealed the fact that these people had taken advantage of a cheap excursion to get free advice in regard to their eyes in response to the suggestion of an enterprising tourist agent. The writer has recently been told of a woman who came all the way from the Pacific coast to get advice as to the necessity of undergoing a laparotomy. She traveled about 3,000 miles, applied at one of our largest dispensaries and got an opinion that probably cost her just ten cents.

The methods of seeking medical advice are often contagious. A person goes to a hospital or dispensary and gets relief. He straightway tells the neighbors of his good fortune, and away they all go to the same place to get that for which they have been accustomed to pay.

Finally, we have a class of patients who deliberately and with malice aforethought resort to charity to avoid paying the doctor, and for no other purpose. They dress up in old clothes, soil their hands, give false names and addresses, and are frauds and pretenders from first to last. It is to be hoped that this is not a large class, but that it exists there is abundant evidence to prove.

Now none of the foregoing people are proper objects of charity, and there is no good reason for making them so. They need to be informed, educated, directed and advised as to the true state of affairs, and told the best course to take to procure the necessary services in a proper manner. A kindly interest, tact and discretion will satisfy the better class, and the others will be satisfied with nothing in reason. With a little patience and forethought the hospital physician can do much to strengthen or restore the confidence of those who have become dissatisfied with their medical attendant. Any open criticism of the latter by the former is of course never made by the judicious and kindly disposed. Any suggestions in regard to diagnosis and treatment are better given in a private note, rather than through the patient. Nothing is ever lost, but much trouble sometimes saved by a little forethought in dealing with patients who are disposed to criticize their physician. Such bread cast upon the waters is very apt to return in the form of future blessings.

In sending the worthy poor to the hospital the outside physician could aid the cause by giving them a card or note, as a voucher of their needs.

[9] Dr. Hasket Derby: BOSTON MEDICAL AND SURGICAL JOURNAL, Nov. 12, 1885.

Patients able to pay even a moderate fee should be sent, not to the clinic, but to the physician's office with a note stating the circumstances, and suggesting such consideration in the fee as he is able to pay. Should the consultant not care to take the case, let him recommend some competent physician, of whom there are usually plenty, who would be glad to undertake it.

If the consultant is wise, he will not only kindly explain matters to the patient, but will say something like the following: "Go and see Dr. A., and if things don't go right, let me know, and I will help you out." He will thus establish a feeling of confidence and esteem among all parties. The patient will feel that he is receiving proper attention for which he is to pay a reasonable fee; the young physician will be encouraged to merit the confidence placed in him, and the consultant will thereby enlarge his sphere of usefulness in the direction most satisfactory to any ambitious man.

Physicians in private practice need have no difficulty in obtaining the assistance of an expert in their charity cases without sending them to a hospital. The consultants are few who are unwilling to accommodate a fellow practitioner by seeing his poor patients along with the better class. "So long as I am your consultant, Doctor, I will help you in any way possible regardless of the financial condition of your patient." The physician who would take advantage of this sort of a consultant by sending him only his impecunious patients would be very inconsiderate, to say the least, and would probably be little influenced by any rules or regulations that might be made for his guidance.

The fundamental rule for all physicians to observe is to encourage no patient who can pay a fee, to apply at a free clinic, and thus be made an object of charity. They should be urged to pay for medical services, as they would expect to do for any others that come within their means. Their manhood should be stimulated, and not narcotized. The deliberate frauds should be black-listed, and put on record for easy reference.

The argument has been advanced that well-to-do patients make an adequate return for what they receive at the free clinics by serving as material for study and observation. We hardly think this argument would be accepted in any other profession or calling, and we do not think that it is either sound or reasonable when applied to ours. Very many respectable physicians feel that they are now being deprived of their legitimate work to an unwarrantable extent by the numerous free clinics, and that if they continue to increase it will soon be even more difficult to earn an honest living at their profession than it is at present. For the same reason more desirable men will be deterred from entering the profession, than is said to have been the case in the past.

It would be difficult to suggest a scheme more demoralizing to the business sense of the community than this one would be if adopted to any extent. Properly used it would seem as if the worthy poor of our large cities might furnish sufficient clinical material to satisfy all reasonable demands. At all events this does not seem to be a good reason for increasing our indigent classes. They are already too numerous, and our efforts should be directed to diminishing, rather than to increasing, their numbers.

The criticism may be made that this paper is too commercial, is on too low a plane to be brought before this audience. In reply the writer would remind his hearers that the time may come in the lives of any of us, when an honest dollar will be the best friend we can have. Too many physicians in the past have been defrauded of their just deserts by this promiscuous and unlimited medical charity, and as the custom seems to be on the increase, it would seem time to sound a note of warning even at the risk of being thought too mercenary. Would that the pen were an abler one than mine.

We believe that the laborer is worthy of his hire, even though he be a physician. We believe that the doctor should receive a reasonable compensation for taking care of those able to pay for his services, wherever they may be rendered. We believe it to be the duty of the trustees of our medical charities to protect the physicians, the public and themselves from this wide-spread and increasing abuse of these services. The trustees of these institutions are honorable, upright, intelligent men, thoroughly conversant with sound business principles, and we believe that they will agree in the right and justice of our claims. We also believe that they will welcome any reasonable plan that bids fair to correct the wrong.

We do not counsel strikes, lockouts or boycotts. The matter at issue rests with gentlemen, and should receive calm, careful and rational consideration, as becomes the importance of the cause, and the character and dignity of the parties interested. It should be settled right, for until that is done, it will never be permanently settled.

Judicious, harmonious and persistent efforts on the part of the profession are essential to our success. The reform has been satisfactorily accomplished in other places, why can it not be done here? The writer believes it can be, if we insist upon it. How shall we set about it?

Unless some one can propose a better plan, the writer would suggest that a committee be appointed at this meeting to take the matter in hand. Said committee to consist of seven members, to have full powers to add to its numbers, and to take such steps as may be deemed necessary to accomplish the desired results.[10]

SOME ABUSES OF MEDICAL CHARITY.*

BY HASKET DERBY, M.D., BOSTON.

It has long seemed to me that an emphatic protest should be made by the profession, in regard to the Massachusetts General Hospital rule concerning private patients.

Assuming that a hospital exists, primarily, for the relief of suffering and destitute humanity, and in the second place for the improvement of

[10] Such a committee was appointed.

*The following papers were read in discussion of Dr. Geo. W. Gay's paper on Medical Charity, at the Medical Library meeting in conjunction with the Suffolk District Branch of The Massachusetts Medical Society, Jan. 11, 1905.

professional knowledge and the instruction of students, it is difficult to see how either of these purposes is fulfilled by the gratuitous treatment of the rich. And, going a step farther, it would seem that such a system can only be characterized as a deliberate robbery of the profession, especially when we hear the claim calmly advanced by one high in authority, that in such cases a full fee should be charged for the operation and covered into the treasury of the hospital. It is of course but right that its private rooms should be a source of income to an institution and contribute directly to its maintenance. It was thus that the Carney Hospital was enabled to struggle into existence. But why should the surgeon be not only invited, but required, at the bidding of a board of lay trusetes, to expend his services on those amply able to pay for them, without a particle of compensation? An Astor, a Vanderbilt, nay, even a Thomas W. Lawson, may thus be found the occupant of a private room, the guest of the hospital, the master of the surgeon. His treatment of the millionaire may bring him an approving conscience, but will not help pay his rent or taxes. It is difficult to see how self-respecting members of our profession can submit longer to this iniquitous rule.

The only other point in Dr. Gay's excellent paper on which I desire to comment is as to the proper means of discriminating between the fit and unfit who throng the waiting rooms of all our large institutions. Stress has been laid on the questions to be asked, which are indeed both right and proper. But too little has been said about the man who is to ask them. There is required a degree of tact, experience and knowledge of human nature which is rarely possessed by a superintendent's assistant. The examinations made by this individual are but too apt to be perfunctory and often futile. I have always maintained that the casting vote should be thrown by the surgeon himself. Such was the rule at the Eye Infirmary, during my own thirty years of service. I never treated a patient whom I personally regarded as unfit, and I am sure that these gentry were pretty effectually weeded out. But the present excellent and efficient superintendent has abrogated this privilege, and now denies the surgeon any voice in the matter. The result has been, and in making the statement that follows I voice the opinion of all my colleagues whom I have consulted, that the Eye and Ear Infirmary has simply become notorious for its laxity in treating patients able to apply elsewhere, and that no institution in our city finds its rules more easily or constantly evaded.

Let his ancient privilege of rejection be restored to the surgeon, and we shall see a desirable return to the old order of things.

ABUSE OF MEDICAL CHARITY IN BOSTON.

BY J. W. ELLIOT, M.D., BOSTON.

THERE is no question as to the fact that there is a great abuse of medical charity in Boston. Everybody is familiar with instances. Not long ago the newspapers reported that a lady had had her pocket picked on an electric car. She was interviewed as to how much she had lost and blandly told the reporter that she had just been to the bank to draw $30, and was on her way to the Eye and Ear Infirmary for treatment.

Hospital managers are beginning to realize that they have no right to use the funds on well-to-do patients, thereby crowding out the sick poor. It seems to me it is their plain duty to go to the trouble and expense of finding out who is deserving of medical charity and who is not. It also seems unfair and unnecessary to pauperize a portion of the community for the purposes of medical education. It is probable that this evil will continue to grow if it is not checked, as in London, where hospitals have existed for a much longer time and have become too numerous, the formation of a central hospital board is being agitated, which shall supervise hospital managements and prevent their pauperizing influence.

The Massachusetts General Hospital has already a system of questioning patients as to their ability to pay. In 1904 there were 106,175 visits made to the Out-Patient Department. To these patients 3,307 free passes were given, the rest paid a fee of ten cents for each visit. This system probably prevents a certain amount of abuse, but it clearly does not go far enough, as many of the applicants do not tell the truth. The ten-cent charge has the great disadvantage of giving imposters a better standing. It certainly does not rid the managers of the duty of looking up the doubtful cases at their homes.

In regard to private rooms, the report of the Massachusetts General Hospital states that in 1903 69 patients paid $35 per week, and that 362 patients paid $21 or more, and that the amount received from patients was $74,538. I believe it would be better for general hospitals to abolish all luxurious private rooms and not to admit patients who can pay over $20 per week. Such patients should be referred to members of of the hospital staff and sent to a private hospital.

The question of allowing hospital physicians to charge a proper fee for attending rich patients who are admitted to their wards seems to have been pretty well settled here in Boston by the establishment of several excellent private hospitals, where well-to-do patients can be made much more comfortable and treated with decidedly better results than can be obtained at the general hospitals. Yet I think it is a proper courtesy for hospital managers to allow the hospital staff to charge rich patients for services rendered at the hospital.

THE PRIVATE AND PUBLIC HOSPITAL.

BY ALFRED WORCESTER, M.D., WALTHAM.

MY own experience has been only in a small hospital in a small city, where the two very different functions of a public and of a private hospital are necessarily combined in one institution, and where it is possible for the administration to decide fairly well who are entitled to free

beds and who shall have the privileges of private rooms and of paying for their medical attendance. But in large cities it is absurd to suppose that any officer of the hospital administration can properly decide such questions. And as for leaving it to the physicians to decide, I for one would protest that physicians already have trouble enough in having to estimate in their private practice the paying ability of their patients.

The whole trouble, as it seems to me, is due to this mistake of combining in one large institution the private and the public hospital. In London no such mistake is made. The public hospitals are for the poor only. And the physicians there protest against charging even the price of the empty bottle to out-patients of the hospital. This, of course, is too extreme. Our American practice of charging the cost of hospital care to all who can pay for it is a better way, in that patients so are not pauperized and the charity of the hospital is not overstrained. But it is no longer the proper function of large hospitals, supported either by charitable endowments or by public taxation, to compete with private hospitals by catering to the rich.

Formerly, before the era of asepsis, such provision for the wealthy was necessary for their protection. Now such patients can be at least as safely cared for in the small private hospitals.

The solution of the difficulty will never come by considering only the pecuniary advantage and disadvantage of physicians. In my opinion the reader made of too little account the professional advantage of a large hospital service. The experience and prestige so gained is of great value to physicians and still greater to surgeons. No one is obliged to accept or retain hospital appointments.

The right solution of the question can come only by considering the question from the patients' standpoint. And if in large hospitals, like the Massachusetts General, the private rooms were used as they should be, only for patients whose critical condition demands the advantages of retirement and of extra care, and never given to patients simply because of their financial ability, there would then be no danger of rich imposters upon medical charity. Patients able to pay for luxuries would go where they should go, to the private hospitals. Were such a policy adopted, there would also soon be an end to the present fashion of building luxurious palaces out of charitable endowments and public funds.

THE REGULATION OF MEDICAL CHARITY.

BY FARRAR COBB, M.D., BOSTON.

THE subject of the proper regulation of medical charity has been one of great interest to me during the past ten years. As superintendent of our largest special hospital, the Eye and Ear Infirmary, and as a member of the out-patient surgical staff of different hospitals during this time, I have gained more than a little practical experience, and have been led to study the questions under discussion with more than ordinary care.

Soon after I became superintendent of the Eye and Ear Infirmary it was established as a principle of that institution, at my suggestion, that the questioning of patients as to their fitness or unfitness was the function of the managers or trustees, and not the function of the physicians or surgeons. Since then an increasing number of supposedly unfit cases have been questioned by some salaried officer of the instituiton. For the first five years most of these cases were questioned by myself; since then this questioning has been done by my first assistant, an executive officer of more than ordinary ability. Patients suspected by the registering clerks in the waiting rooms, or by the surgeons on duty, as being unfit for charitable treatment have been sent to the executive office for questioning. These cases have been asked a formal printed list of questions and the decision in regard to their fitness has been made accordingly. This system has accomplished much, but not enough. During the last two years it has been evident that further and more severe measures to control the abuse of medical charity in the out-patient department, especially in a certain class of cases, should be made. The ophthalmic staff, after conferences with me and with my heartiest approval, have recommended to the board of managers that a more rigid system is greatly needed, and that the board of managers permit the appointment of a salaried officer, a man skilled in dealing with the poor, who shall have no other duty but the proper regulation of and investigation of the out-patient abuse. The Executive Committee of the Board of Managers have expressed themselves as in all probability willing to see this plan given a thorough trial for a year. I am hopeful as to its success. I think it will succeed at the Infirmary without the co-operation of the out-patient departments of the general hospitals, because of the special nature of the work of the Infirmary and its relation to this community. I recognize, however, that this co-operation will be very desirable if it can be obtained.

The limits of this discussion will not allow me time to take up the subjectat length or in detail. From my intimate, practical contact with this question in an executive way; from questioning thousands of individuals; and from a study of other hospitals, I have formed some very definite opinions on this subject, which opinions I can only summarize as concisely as possible. Abuse of medical charity at our hospitals exists in the out-patient departments and in the in-door departments. While the dispensary, or out-patient, abuse needs correction, the correction of the abuse among house patients is equally necessary, and, if anything, more important from the standpoint of educating the community and securing the proper public opinion to assist us. It is absolutely necessary that proper regulation apply to all departments of a hospital.

In regard to the out-patient department, the majority of out-patients who need successive treatments requiring more than two or three visits are worthy objects of charity. A large

number of the cases needing a single examination, involving the giving of an opinion or a prescription, whether for medicine, a surgical appliance, or spectacles, can afford to pay a moderate fee for the service. I do not believe, however, that this number is as large as many members of our profession suppose. Of the latter class a small number are sent by or brought by physicians for no other purpose than an opinion in consultation; most of these cases are decidedly unfit.

Just what the most successful system of regulation may be is still in doubt. I believe that the system in every institution should be in the hands of a salaried officer of the board of trustees, and that the physicians and surgeons should have nothing whatever to do with it. This officer should be a man experienced in all questions relating to public charities and the poor of our large cities and smaller towns; he should be a man of tact, kindly and responsible. The questions asked by him and his powers should be defined by rules of the Trustees; he should serve under the direction of the chief executive officer of the institution. A number of men of high standing in our profession think that hard and fast rules, based on the occupation and circumstances of individuals, can be made; they would have servants, women clerks and stenographers decided against almost invariably. No such rules can be laid down. My experience has taught me that in a great many instances these classes are worthy objects of charity. Most of them have others dependent upon them and the payment of a single fee for examination and treatment would be a decided hardship. Whoever questions and investigates cases should always err on the side of leniency. A charitable institution always should give a patient the benefit of the doubt. Whether it is best to prove the answers of suspicious cases by subsequent visits to their homes, or by any method of detective investigation, or whether these cases should be directed to return at a later day bringing with them a statement in writing from some reliable person, overseer of the poor, priest, reputable physician, etc., is a matter for future decision. Whatever system is adopted care should be taken not to drive away cases needing treatment immediately. Any system carried out rigidly will undoubtedly bring hardship upon a small but definite percentage of persons; those refined and sensitive people who have seen better days will always choose suffering with lack of medical and surgical care rather than present themselves as certified objects of charity at any institution; yet this class of patients is one of the worthiest that applies for charitable treatment, and in my experience none too small.

No system can be carried on successfully by any one of the general hospitals or dispensaries in this city without the co-operation of all the others. I am strongly of the belief that medical charity is more abused in this community than in any other city in this country. This is because the inhabitants of Boston and all parts of the Commonwealth of Massachusetts have been educated to expect it as their right to receive medical and surgical care for nothing while being boarded practically as private patients in the in-door departments of certain hospitals. I believe that any system to regulate medical charity will fail ultimately, no matter how energetic the efforts to turn away patients from our out-patient clinics, unless the in-door abuse at all the hospitals is properly corrected. This community, more than any other in which I have studied hospital systems, needs education on this question. The trustees of our hospitals, our representative citizens, and the members of our own profession need this education. Just so long as people have reason to believe, as they have had ample reason in the past, that those of moderate and even large incomes can be taken to a hospital and be cared for in rooms and only pay a moderate fee for board, lodging and nursing, and not a cent for medical and surgical care, just so long will the public in the end defeat any attempt to consistently regulate medical charity. In-door patients in our large hospitals should be graded; charity cases should be charity cases, private patients should be treated as private patients. The establishment of private pavilions or wards with proper regulation of charges, as in most of our large cities, is necessary. The proper place for a private hospital is under the wing of a large charitable hospital.

A POSSIBLE REMEDY.

BY JOHN C. MUNRO, M.D., BOSTON.

ONE of the fundamental obstacles to the correction of the abuse of medical charity is the system at present in vogue in our larger hospitals. The medical and surgical staffs are composed of men belonging to one of three general types: First, those who make the hospital work a side issue, often accomplishing excellent results spasmodically, rarely grasping the full meaning of the work necessary to put the hospital in the front rank. Such men may be classed as dilettanti. Second, those who make a commercial use of their position on the staff to further their individual advancement, rarely contributing anything of value to the art of medicine or to the hospital. Such men may be classed as commercial. They are, fortunately, in the minority. Third, those who have scientific and humanitarian ideals, who willingly devote their time and money to the work of the hospital for the sake of the work itself; who ask for a responsible opportunity to work in the furtherance of their ideals, and are satisfied with a reasonable recompense therefor. To define this class is difficult; the members belong to the majority. With these three types there is no definitely responsible head in either the medical or surgical departments. What is the result? The dilettanti will not actively interest themselves to enforce the reforms which must come from the staff first of all. The commercial class is more interested in its business ventures outside the hospital, while the third class cannot carry through a reform of this magnitude without the co-operation of all

their colleagues. The remedy consists in reducing the size of the staffs, in placing responsible heads in the departments who shall be on duty throughout the entire year, who shall not only be allowed to make a living from the wealth of material which flows through the larger hospitals, but who shall be aided and encouraged by the trustees to that end. Until some such change is made, it is useless to plan other and ineffective solutions to the problem. The surgical and medical chiefs must be put in charge of their wards on as definite a business basis as though they were in charge of a large commercial enterprise. They should be given every opportunity to treat, for just recompense, patients who are rich as well as the poor. It should be the business of the trustees to investigate the financial condition of any or all patients. This need have no deterrent effect on the care and treatment of the indigent poor, nor ought it to be construed as so interfering in any way, shape or manner. Thus we should have patients charged just fees commensurate with their income. We should hear less of the exorbitantly large and the ridiculously small fees that do so much to hurt our profession. This plan would place a few individuals in positions of great responsibility. It would also deprive certain and undeserving men of their hospital prestige. It would encourage first-class work in younger aspirants who should be allowed, under certain restrictions, a share in the legitimate proceeds coming through their hospital work. If I am not mistaken it is some system similar to this that has made world-famous the clinics of Billroth, Kocher, Mikulicz, Robson, MacEwen, Murphy, Matas, Mayo, McBurney and many other others.

The scientific consideration, more important by far, does not concern us tonight and need not be dwelt upon. I would extend the system even further to cover our out-lying hospitals. One or two local physicians and surgeons should be encouraged to do the advance work in their districts for which they should receive suitable recompense, aided and abetted by their fellow practitioners. In this way a few men, sufficient in number, would be doing the skilled work of their district and would be receiving just compensation, instead, as is the case now, of a lot of half-trained surgeons and physicians, exacting unjust fees for skilled work improperly done. Furthermore, as soon as the people know that they can receive first-class work for legitimate charges from men who have certain professional seals of approval, the people, speaking in a broad sense, will be willing to pay. It is the lack of responsibility, the varying results of medical and surgical work, the unreasonable charges, both too large and too small, that have done as much as anything to put the people in the position, so to speak, of working our profession. The position of the trustees of our hospitals on the question of recompense for the staff is, in the main, as bad as it can be. It is not business-like; it is not humane; it is not truly charitable; but in their defence it must be said that so long as the present system of large, irresponsible, short-service staffs prevails, the problem of adjusting the pay to the work of the staff is a most difficult one.

MEDICAL CHARITY AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY FREDERIC A. WASHBURN, JR., M.D., BOSTON,
Assistant Resident Physician, Massachusetts General Hospital.

JUST a word about the methods employed to correct abuse of charity at the Out-patient Department of the Massachusetts General Hospital, and then I will defend what is very evidently the unpopular side of to-night's question.

Among applicants for treatment at an out-patient department there are four distinct classes which demand consideration here:

(1) Patients sent to the out-patient department by physicians for diagnostic purposes in order to save their patients the consultant's fee. This is met at the Massachusetts General Hospital by refusing to admit to the out-patient department for consultation. The out-patient staff is not expected to furnish opinions or diagnoses to outside doctors. The doctor must transfer the case to the hospital for treatment stating that the patient is unable to pay.

(2) Patients who apply for treatment in ignorance of the conditions, expecting to pay. These patients have applied to the hospital because of its reputation and to keep out of the hands of quacks. They are given the cards of the out-patient staff on duty at that time in the department to which they would naturally go. They are told that they can go to one of these men or to any reputable doctor.

(3) Patients who need treatment by a specialist, but cannot pay the large fees ordinarily charged. It is understood by the physicians and surgeons of the special departments that if a patient comes to the office of one of them with a card from the hospital and states that he is able to pay a moderate fee only, the physician is to treat him for such moderate fee, or, if he does not care to do so, notify the physician in charge of the out-patient department to that effect so that cases need not be referred to him. The younger men in the special departments are usually glad to take such cases. If it is, for instance, a throat or nose case and an operation is required, for which the patient cannot pay, he is referred back to the hospital and admitted to the out-patient department or house as is indicated.

(4) People who are able to pay for a physician's services trying to get free treatment. An applicant who doesn't show at once that he is entitled to the charity of the hospital is questioned as to when he has been treated in the past and by whom. If he gives the name of his physician and does not produce a letter of reference from him, he is sent back for it and told that this letter must state distinctly that he is unable to employ a doctor. Sometimes a patient will reply that it is not his intention to return to his doctor under any circumstances, or that he has never had a

doctor in this locality; in such a case he is told to go to any good doctor, preferably in his own town, or if he desires he can have the cards of our men. Other cases of doubt, where it seems too much of a hardship to turn them away for a letter, are questioned and admitted or refused according to their answers. Undoubtedly in this last class there is a small but recognizable body made up principally from the Hebrews of the West End who are well to do and put on rags for out-patient purposes only. These people are occasionally detected, but on the whole they know the lies to be told and the appearances to put on to gain admission. Such rogues we cannot hope to detect. Tax books help some, but these would only show real estate held, for a man who would lie to get free medical treatment would not hesitate to lie about personal property.

I wish to emphasize the necessity of having all applicants handled by a physician and a man of patience and tact.

I am indebted to Dr. Peters' able article on "Experience in checking Dispensary Abuse in the Rhode Island Hospital," for the sub-divisions used. He makes use of three others which I have omitted as they do not apply to our clinic.

CASES ADMITTED TO THE HOSPITAL.

No physician or surgeon can charge patients for his services at the Massachusetts General Hospital.

All patients, except accident cases, are recommended for admission by physicians either from their private practice or from the out-patient department. I have endeavored to state briefly how we have reformed our out-patient department, and now I want to ask the aid of this society in reforming its own members. We are to a great extent dependent upon the good judgment of physicians outside in recommending for admission only such patients as require free medical treatment, that is, those who are unable without hardship to go to a private hospital or to have the necessary nursing and attendance at home. When you, gentlemen, who are best fitted to know your patients' circumstances, refuse to recommend to a general hospital those who can afford to have the necessary attention at a private hospital or at home, then the abuse of which you complain stops of itself. So much for such abuse as does exist, and in my opinion it is very inconsiderable at the Massachusetts General Hospital.

One word as to the great gifts of time and services which physicians give the hospital. While I am among the first to admit that the reputation of the hospital is dependent upon the reputation of its staff, on the other hand, let us not forget that the physicians and surgeons in any great hospital receive as much from the hospital as they give to it, both in reputation and the chance they have of improving themselves in its wards.

The suggestion which has been made here tonight that the staff of our large hospitals be allowed to charge patients in private rooms is, in my opinion wrong and would leave the physicians unconnected with such institutions in a worse position than they are now. If the Massachusetts General Hospital were to admit private patients who were allowed to pay fees to the physicians and surgeons, this fact would soon be noised through New England and the prestige of the hospital would bring to it many patients who are now kept away because they know they cannot come here and pay the surgeons their fees. The result would be that it would be necessary to build a large private ward building, perhaps like that of the New York Hospital, and the position of surgeon at the Massachusetts General Hospital would have a direct financial value. It would most certainly cause a loss to surgeons in Boston unconnected with this hospital.

The better remedy is the multiplication of private hospitals where patients can have the advantages which they now enjoy at a general hospital and where they can be received at a moderate expense.

The Massachusetts General Hospital has three rates of board: $10.50 per week in the open ward, $21 in a small private room and $35 per week in the Jackson ward, a ward of 8 rooms only.

There is a distinct class of cases for each of these rates. The open ward, maximum rate $10.50 per week: Here are admitted free patients, patients who pay in part and patients who pay the full rate. Every one is expected to pay what he can. There is a certain discrimination used in admitting free cases. The young man who is recommended, for example, for a varicocele or a hernia which does not disable, is expected to earn enough to pay at least a part of his board before he is admitted, where the father of a family with a similar condition would be admitted free. Men earning from $15 to $20 a week are expected to pay the full rate as a rule.

The small private rooms at $21 per week meet the needs of another class: school teachers, ministers and men and women of refinement who are on small salaries. For these, if necessary, a reduction is sometimes made to $14 per week.

The 8 rooms for which the hospital charges $35 per week accommodate a very limited number of patients yearly. They are utilized to a great extent by patients recommended by the staff of the hospital and by members of our own staff or graduate or present house officers who are ill. One great object of this ward is to have a place where the conditions are similar to those in private nursing for the instruction of pupils of the training school. Last year 63 patients only paid as large a sum as $35 per week. The hospital intends to care for *all* accidents less than twenty-four hours old and acute emergencies. A millionaire may meet with an accident and be brought to the hospital. Such a case would not be turned away. When able to go out, he would, of course, be expected to go elsewhere for subsequent treatment.

In closing I wish to repeat that in my opinion there is not at the present time any considerable abuse of hospital charity at the Massachusetts General Hospital.

THE PHYSICIAN AND THE HOSPITAL PRIVATE PATIENT.

BY E. W. CUSHING, M.D., BOSTON.

We have listened to an admirable exposition of the abuses of medical charity, which seems to meet with the approval of all present with one exception. There is one point, however, which was not brought out by the reader and to which I should like to refer. That is, that in various hospitals, and among them those of New Hampshire, members of the staff are permitted tocharge for services to patients in private rooms.

Now, in all the hospitals of New Hampshire this privilege is not confined to members of the staff, but any physician who sends a patient to a private room may attend him and charge for his services. Conversely, any patient taking and paying for a private room may select his own physician or surgeon. This privilege or right seems to me to be the very crux of the whole question. I refrain from suggesting its application to the great hospitals of Boston, lest I seem too heretical and revolutionary. I had the honor of reading a paper on this subject before the New Hampshire Medical Society, after Dr. Gordon had first brought to notice the abuse of charity in the Maine General Hospital, which throughout Maine has corrupted the conscience of the public, and injured the practice of medicine, as far as remuneration is concerned, in the same way that the Massachusetts General Hospital has done in this state. (I permit myself to mention the institution by name since it has been brought into discussion by the reader of the paper.) Before the New Hampshire Medical Society I took the ground that in so far as the trustees of a public hospital have to provide medical and surgical service for the *poor* they are bound to select the best professional skill which in their judgment is available; but in so far as they wish to earn an honest dollar for the hospital by conducting a medical boarding-house, or private hospital, for private patients who pay their board, they have no right to interfere between physicians and their patients by excluding any responsible physician.

I am glad to say that this principle has prevailed in all the hospitals of New Hampshire, and I rejoice that the reform is spreading in Massachusetts. It is evident that if the staff physicians alone have the right to charge for services to private patients they have an undue advantage over outside physicians, and in smaller hospitals, at least, where all the members of the staff are in general practice, this discrimination is bitterly resented by the profession at large, who are apt to lose not only the subsequent treatment of the patient, but of the whole family if the patient has been in the hospital. So grave an evil has this become that in various cities the outside physicians have banded together to establish opposition hospitals rather than lose the continuity of care of their patients. As matters stand at present, however, the members of the staffs of hospitals are not in a position to insist on changing the system, even if they are disposed to do so. The trustees of hospitals are shrewd business men, and are selected for that reason. They have little regard for the rights of physicians or for their relations to each other. They have little faith in the part which charity or benevolence has in leading physicians to serve in hospitals. They want to get medical services gratis and find that they can do so by continuing the system of paying the staff not in money, but in opportunity, reputation and in advantages over other physicians.

Business men have little regard or respect for the practical good sense of a profession the members of which are willing to give their services gratis to well-to-do patients. They consider them deficient in business ability and take advantage of them accordingly. When they have seen how easy it is to make money for the hospital by robbing the profession they are not easily deterred, as Horace says:

"*Ut canis a corio nunquam absterrebitur uncto.*"

It has been asserted here on behalf of the system of the Massachusetts General Hospital, which is the head and front of this offence for all New England, that it really does little damage to the profession, because the rooms at $35 per week are seldom more than half filled, and not always with well-to-do patients. Also that most of the patients in the $21 rooms are in such circumstances that they could not well afford to pay anything for medical services, and that therefore there is no substantial abuse in the present system. I beg to submit that this reasoning is entirely fallacious. It is not a question of the gross amount that is lost to the profession by the fact that certain patients in private sooms in hospitals receive professional services gratis. The injury to the profession is in the fact that as long as such free services are offered in the Massachusetts General Hospital, patients are unwilling to pay for treatment or operations elsewhere, and use the well-known fact that they can get professional services free to beat down prices. In fact the Massachusetts General Hospital has deliberately educated the public to feel that money spent on doctors is wasted. People are willing to pay $35 per week for board in private hospitals because they think that board and nursing are necessary and proper expenses, but they sorely grudge fees to physicians and surgeons simply because they know that they can get such services for nothing.

The only remedy is for the organized profession to declare that it is unprofessional to render professional services gratis to people able to pay for them, whether in hospitals or elsewhere. If this can be established as the rule of the profession, the members of hospital staffs will be able to insist on the desired reforms, and the profession can require them to do so.

Moreover, the profession should insist that whenever a patient pays for a private room in a hospital he should have the right to receive there the services of whatever physician he may select.

CERTAIN FAULTS IN MEDICAL CHARITIES.

BY SAMUEL CROWELL, M.D., DORCHESTER, MASS.

THE medical charities, admitting all patients free, without some inquiry into their financial condition, do an injustice to those who support these institutions.

The principle is the same, whether it be the smaller hospitals, where earnest, kind-hearted women, by their strenuous efforts, struggle to meet the expenses of their pet charity; the larger, institutions, endowed by the lavish thousands of philanthropic donors; or those supported by the taxes of the people.

When a person, amply able to pay, is admitted, cared for, nursed, or operated upon, the money given for the support of that hospital has been misappropriated. The neglect to discriminate, on the part of the authorities having the power to admit, is taken advantage of.

The donors have the right to ask of the trustees or board of directors, "How are you using our money?" "Why are people in good circumstances occupying the beds we intend for the poor?"

While a "well-to-do" taxpayer may claim the right, as such, to be a patient in a municipal hospital, he is there at the expense of other taxpayers and occupies the bed intended for the poor and needy. Several years ago a patient entered the Woman's Charity Club Hospital, from Newport, to be operated upon for fibroid tumor of the uterus. On the morning of the operation, shortly before ether was to be administered, it was learned that the patient owned a block of three or four houses, and was in good financial condition. She had gained admission under false pretences by signing a paper saying she was unable to pay for an operation. At that time all patients were admitted to this hospital free of charge. The operating surgeon declined to operate and let the patient leave the hospital on the ground that the ladies who were working so hard to support this charity did not appeal to their friends and the public for money to benefit this class. She was not a charity patient and that some surgeon, who should expend his skill, nerve and time upon her, was entitled to remuneration.

Another practice of medical charities which is doing incalculable harm to the medical profession as a whole, as well as to the members of hospital staffs, is the admitting of patients who pay for beds, private rooms, special nurses and the like; patients who are financially sound, even rich. They are surrounded there with all the comforts of home and even more, but the governing boards will not allow the physicians and surgeons who safely guide these patients back to health the right to charge or to receive any compensation for their services.

One may well ask what justice there is in refusing to the medical attendant the same privilege to charge which the hospitals exercise in adding to their income and support.

Arrangements were about completed to operate on a man in good circumstances for radical cure for hernia at a private hospital. He was to call and make final arrangements. He appeared, however, three months later, saying: "I suppose you wonder where I have been? Well, I have a cousin, a physician, who wrote me saying I was a fool to pay your price when I could go to the Massachusetts General Hospital and have it done for little or nothing. So I went there." He might have gone to the Boston City Hospital, as others have done; the result would have been the same. In admitting this patient to either institution is it just to the surgeon? Is it just to the tax payers of Boston? Is it just to the one who operates? No, the whole profession sustains an injury by the loss of patients who go where they can be attended the cheapest. The hospital staffs are treated unfairly by being compelled to do a greater amount of work, and upon patients that are not to be classed as charity.

A bank clerk agreed to be operated upon at a private hospital for the removal of his appendix between attacks. The fee and hospital charges had been agreed upon, when he returned to say a clerk in the bank with him had the same operation at the Massachusetts General Hospital for just the price of the room, and he thought of going there himself. He was asked if he or his friend were objects of medical charity. He seemed surprised at the question and said, "No." He admitted on further talk that the surgeon was entitled to some remuneration and when it was shown that no matter how large a sum he paid to the hospital he was still under obligation to the surgeon, he returned to his first plan, and the surgeon compromised on the fee. Let me further add that a year later when his position in the bank was advanced and his salary raised, the surgeon was greatly surprised one morning on receiving an additional check of $50. This is such an unusual case that I consider it worthy of mention.

Scarcely a week passes without a similar instance, and patients slip through the physicians' hands.

The key to the situation is here: the splendidly equipped hospitals of to-day are sought out by patients from every walk of life,— the rich as well as the poor.

Conditions have changed from the originally conceived idea of the purposes of a hospital. With this change, the methods of admitting patients should also change.

The poor should be welcomed as of old. A discrimination should be made according to the financial standing of the patients, who should pay according to their circumstances, not only the hospital but the surgeon as well.

ABUSE OF MEDICAL CHARITY IN THE SUBURBAN DISTRICTS.

BY CHARLES H. COOK, M.D., NATICK, MASS.

PERHAPS I may best illustrate one of the chief ways in which medical charity is abused in the suburban districts by reporting three cases out of the many of which I have personal knowledge. I advised a lady to consult a Boston oculist; a

few days later she informed me that a friend had recommended her to go to the Eye and Ear Infirmary because she could probably see the same oculist there without expense. "But, my dear madam," said I, "you do not wish to class yourself as an object of charity, do you?" "No, indeed!" was her reply. I then explained the situation and she quickly decided to follow my advice, which she could well afford to do, for her husband was receiving an annual salary of $5,000 from the State of Massachusetts.

A young man, single, a college graduate, receiving an annual salary of $1,200, deliberately went to the Out-Patient Department of the Massachusetts General Hospital because he could get his examination and prescription free.

I advised a mother to take her son, who needed lenses for astigmatism, to a Boston oculist. Her husband earns good wages, and owns a horse, an open buggy and a top buggy, both rubber tired. She told me that she was able to pay a fee of five dollars, and promised to call at my office for a letter of introduction, which would also specify the fee. She did not call. Some weeks later I met the boy, wearing gold-bowed spectacles. The mother said that she went to the Infirmary because by so doing she could save the five dollars.

I have repeatedly known patients to go to the Massachusetts General Hospital because they could thus avoid paying for professional attendance either at home or in the city.

No doubt suburban physicians are often responsible for instances like those just mentioned, because either through thoughtlessness or indifference they advise patients of limited means to go to the out-patient departments, when they might send them with letters of introduction to specialists who would willingly see them for a limited fee. Such, at least, has been my experience. Neither is there any doubt but what there are specialists, I hope the number is small, who have helped on the abuse of medical charity by declining to make any abatement of charges in the cases of poor persons who would gladly pay to the extent of their ability.

Cottage hospitals have brought home the subject of medical charity to many suburban physicians. In my own town, about six years ago, seven trustees had the responsibility of preparing rules and regulations for the government of a hospital. There was unanimous agreement that no ward patients should pay for medical services. Four of the trustees were of the opinion that the physician in attendance on ward patients should be required, during his service, to attend, gratis, any patients in private rooms who might choose to have him, no matter whether he, or some other physician, recommended them for admission. The minority of three held that such a rule would be unjust, not only to the physician on duty, but also to physicians having private patients in the hospital, since it would offer inducement to change to the ward physician in order to avoid paying for medical services.

I believe the views held by the majority of the trustees when they began the study of this question represent the views of the general public. Stated in brief they were as follows: That it is not the business of trustees to inquire into the financial condition of an occupant of a private room and determine whether he is able to pay the doctor a proper fee, although such a course might be just to the doctor; that it is the duty of trustees — or hospitals — to furnish patients with medical services gratis, and if the patient is not satisfied with what the hospital provides, he must make his own terms with the doctor he selects; that while the Massachusetts General Hospital rule is hard on the doctors, it has the merit of being clear and straightforward. It is a very generally accepted belief that hospitals "furnish patients with medical service gratis." I have yet to learn of a hospital that furnishes medical service. Those in authority invite physicians to assist in the charitable work of the institution by giving their services. The physicians accept the invitation, *and it is they, and not the trustees*, who furnish medical service gratis.

After several weeks of careful and candid study of the matter, the trustees voted unanimously to adopt this rule, *viz.:*

"The price of a private room does not include professional attendance. A patient paying for a private room may select as professional attendant any one of the physicians connected with the hospital, and must arrange with him in regard to his compensation before admission to the hospital or on his first visit thereafter."

The practical results of this rule, during nearly six years, have been very satisfactory. In securing its adoption the trustees are under great obligation to Dr. Edward Cowles, who gave much time and thought to the study and investigation of the question at issue. With his permission I quote from a letter written by him, the best and clearest statement of the principle involved that I have seen:

"What is wanted," says Dr. Cowles, "is an adjustment of apparently conflicting rights and obligations on the part of the managing board and the attending staff. The board *must* have control and must not yield it at any point by delegating their responsibility to others. Being in control, they must protect the rights of the gentlemen they invite to aid them in doing their beneficiary work. They ought not to give the *right* to the attending physician to come to the hospital and dictate terms of attendance to patients whom he may find in private rooms, and they ought not to put the doctor in such a position as to compel him to do that in order to assert his rights. But it is a different thing for the trustees to do by grace what they ought to *protect* the rights of the physicians by requiring *previous* arrangements to be made and leaving them to be settled according to the law of custom in such cases."

We have in our town a District Nurse Association which is doing a good work, organized about the same time our hospital was opened for patients. If the physicians and surgeons who have

cared for the ward patients had been paid for their services at local rates, which are very moderate, and had turned the fees thus obtained over to the Nursing Association, the physicians would have been no poorer than they are now, and the Association would have been supplied with funds sufficient to support it for at least twenty-five years, and yet I have recently been solicited for a cash contribution to the above association. I state this to illustrate how little the public realizes the amount of gratuitous services rendered by physicians.

May I venture to suggest some possible remedies for the abuses of medical charity? I would name first, the favorite remedy of our strenuous President, "Publicity," not simply in medical journals, which never reach the eye of the general public, but by carefully prepared statements in the newspapers, those potent molders of public opinion. Second, united effort among the members of our profession. The daily life of the physician, so far as relates to his professional brothers, is an isolated one and stands in the way of attaining what our profession deserves, viz.: "not more power but more influence." It tends, also, to hinder us from making our contribution not of money but of thought toward the solution of questions of common interest and common weal. Third, impress upon the public that in the evolution of hospitals which, if I am correct, were at first purely charitable, having no paying patients, the idea of paying for professional attendance has not developed in the same ratio as has the idea of paying for what the modern hospital provides in nursing and care. Hospitals were formerly the opprobrium of the poor; now they are the boon of the rich.

The question of the abuse of medical charity will not be settled permanently until it is settled on the basis of justice, and Emerson says that, "Justice is the fairest thing all round."

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

(Concluded from No. 10, p. 287.)

BENIGN CYSTIC EPITHELIOMA.[2]

AT the meeting of the British Medical Association at Oxford in July, 1904, Hartzell presented a communication on this subject dealing with its relationship to so-called syringocystadenoma, syringo-cystoma and hemangio-endothelioma. In the cases that have been reported the number of lesions was considerable, sometimes as many as one hundred, but occasionally the number was quite small. The lesions were hempseed or pea sized, yellowish or bluish tumors seated sometimes upon the forehead, nose and cheeks, at other times more or less limited to the anterior surface of the upper two thirds of the trunk. They appeared usually in youth or early adult life and increased slowly as the patient grew up. The course was extremely chronic, but in most cases they ceased to grow after reaching a certain size. In a few cases ulceration occurred after some years. While these cases were much alike clinically, microscopically there was enough variation to lead to considerable difference of opinion among the reporters. Histologically they could be divided into two groups, one where the tumors were composed of rounded or irregular masses of columnar-celled epithelium in which cystic cavities tended to form. The origin of the new growth could usually be traced to the lowest layer of rete cells or to those of the hair follicles. Hartzell regards these as the cases described by himself, Fordyce, Bruch and Jarisch, and that probably some of the cases described as adenoma sebaceum also belonged in this category. In most cases the lesions were found on some portion of the face.

In the second group of cases, the lesions were usually found on the trunk on its anterior surface, and histologically were made up of long, frequently branching tracts of spindle-shaped epithelial cells, these tracts being, as a rule, only a few rows of cells wide and frequently terminating in cysts. He includes in this category the cases of Darier, Jacquet, also Török, Phillipson and others who have given them a large variety of different names, such as Hydradenome éruptif, syringocystedenoma, Nævi cystepitheliomatosi. It is agreed that the affection described under so many names is identical with Kaposi's lymphangioma tuberosum multiplex.

There seems to be no difference of opinion as to the first group of cases, it being agreed that they are benign epithelial neoplasms which have their origin in the lower cells of the rete. With regard to the second group, as is evident from the names, there is much difference of opinion, some regarding them as epithelial growths which originate in the excretory duct of the sweat glands or endothelial growths from the blood vessels.

Hartzell relates the case of a girl of fourteen who presented upon the chin a small, firm nodule with concave surface, in which a small number of whitish bodies resembling milia were embedded. It had existed about four years and was steadily, although slowly, enlarging. It was excised, and the microscopical examination showed a structure consisting of numerous epithelial cells with many round and oval cysts with epithelial walls. The tracts of epithelium were quite long, not more than two or three rows of cells wide, and presented somewhat the appearance of the excretory ducts of the coil glands, but no connection with any part of the sweat apparatus could be demonstrated, nor any central lumen. The hair follicles often showed an abnormal growth, long, slender epithelial branches extending from the sides of the follicles, and many of the follicles contained cystic cavities. Therefore it was very evident that the new growth originated in the disturbed growth of the hair follicles.

The question arises in which of the two groups

[2] British Journal of Dermatology, October, 1904.

above mentioned should this case be placed. Hartzell considers that even a superficial examination of the sections shows that the new growth is identical in structure with the second much-named group, although it is evident that it is a growth originating from the hair follicles and that it has no connection with either sweat glands, sweat ducts, or blood vessels.

In conclusion, as to the relationship of these two groups of cases, clinically, they can scarcely if at all be distinguished from one another; histologically both are composed of cylindrical epithelium, both undergo cystic degeneration, both have their origin in the hair follicles, and both are chronic benign growths of indefinite duration. He, therefore, regards all these cases, which have received so many different names, as varieties of one and the same affection to which the name benign cystic epithelioma is quite appropriate.

RADIO-THERAPEUTICS IN CUTANEOUS AFFECTIONS.[3]

Belot, working in Brocq's laboratory at the Broca-Pascal Hospital in Paris, publishes an elaborate review of the position of this subject up to the present time. He regards it as absolutely settled that the only active agents in this method are the Roentgen rays themselves. He considers that an estimation of the quantity of the rays absorbed by the skin is necessary, and describes an ingenious instrument, that of Holzknecht, which he uses for this purpose. He then describes at length the technique of the treatment, and then discusses its application to various cutaneous affections.

With regard to the action of the x-rays as a depilatory, the writer admits that most practitioners have little faith in this method in cases of hypertrichosis, and consider that it is far from taking the place of electrolysis. He declares that it is only in the very severe cases that it is proper to employ it, cases in which electrolysis is almost impracticable. It is necessary, after a total epilation has been produced, to continue a short sitting every two months, more or less often according to the cases. In this way it is possible to obtain a definite result at the end of one or two years. He admits, however, that almost always the final result is imperfect.

With regard to tinea trichophytina, it is necessary in this affection, also, to get rid of the hairs. Epilation with the forceps is difficult on account of the brittleness of the hair; it breaks off when traction is made. For this reason the x-rays would seem to be especially indicated. Belot thinks that it is probable that a cure ordinarily follows the complete fall of all the hairs affected. The difficulty lies in producing this alopecia. One can never be certain that it will be total, that certain individual infected hairs will not remain, which may infect new hairs. Nevertheless, this method is much in advance of all those that have preceded it, by the rapidity of application and by the absence of painful symptoms.

Favus. — Much the same applies to favus as to ringworm; but in this affection the hairs are not brittle and can be removed by the ordinary methods of epilation. It has not been shown that the x-rays have any favorable action on the cutaneous lesions themselves, nor do they have any bacteriocidal property. The author summarizes the results of others who have tried this method and who have not, as a rule, attributed great value to it. No personal experiences are related.

Sycosis. — Several cases of sycosis of the beard were treated by this method, and the results were satisfactory and certainly quicker than by the usual methods. The exposures were conducted so as to obtain a complete epilation, without, however, producing a dermatitis. As a rule, at the end of a fortnight, the hairs begin to fall, and this is often preceded by an erythema. When the hairs begin to fall, the pustules become modified. It is affirmed that the action of the rays in sycosis is the production of a relatively perfect epilation, and that it produces also a favorable influence on the cutaneous lesions.

Alopecias. — At first it seems paradoxical that an agent capable of causing the hair to fall should be able, at the same time, to favorably influence its reproduction. All depends, according to the writer, on the quantity of the rays absorbed and the inflammatory re-actions which follow. At first it was thought that favorable action of the x-rays in alopecia areata could be explained by its bacteriocidal property. It is probable, however, that it is in the hyperemia produced that the causes of healing must be searched for. The usual treatment of alopecia areata is by the use of more or less irritating applications, which are supposed to stimulate the functions of the papilla. It is logical to suppose that the x-rays act in a similar manner. If the quantity of rays is small, in place of destroying the papilla, they stimulate it. Experience shows that results vary very much according to the individual. It is probable that the duration of the alopecia is a factor to be considered, the recent cases yielding more easily than those which have existed for some time. He concludes that in this affection, radio-therapeutics are a method to be used in exceptional cases, especially in the rebellious ones, and will sometimes produce notable benefit where other methods have failed.

Acne. — After a review of the literature, which has now become considerable, on the treatment of acne by the x-rays, Belot concludes that it is only the rebellious cases which should be subjected to this treatment, and only when other methods have failed. The published accounts have been so much at variance with one another, that it is difficult at present to form an opinion of the exact position of this method of treatment.

Psoriasis. — Much the same position is taken with regard to this affection. Cases treated were rebellious ones in which almost all applications had failed. The patients were healed with moderate rapidity; but the writer is far from proposing radio-therapeutics as an habitual treatment for psoriasis. Here too, it should be

[3] Belot: Annales de Dermatologie et de Syphiligraphie, May, June, July, 1904.

reserved for the severe cases. His experience does not yet extend over a sufficient time to determine the question of its action, if any, upon recurrences.

Four cases of keloids were treated with favorable result, and the method was not pushed to the point of causing a violent irritation.

In two cases of scleroderma much improvement was recorded.

The author agrees with preceding writers as to the favorable effect of the rays in pruritic affections.

In eczema his experience does not seem to have been large. Acute, easily irritable eczemas are not, according to him, suited for this method.

The subject of lupus is exhaustively treated from the point of view of the literature. He concludes that the x-ray treatment has not so far shown sufficiently good results to allow its preference to other therapeutic measures. In lupus erythematosus his experience has not been more favorable than that of most other writers.

One of the most remarkable effects of the x-rays thus far noted has been the effect upon certain cases of mycosis fungoides. Two cases are cited, which were greatly improved by this method.

Nothing especially new is offered by the writer with regard to the treatment of malignant new growths, except the statement that sarcoma, or at least certain forms of sarcoma, are more quickly influenced by this treatment than epitheliomata in the same region and situated at the same depth.

As regards other cutaneous affections, a case of vascular nevus, of the type of port wine mark, was very greatly improved by causing a violent inflammation with the rays; also in several instances verrucæ were made to disappear.

Recent Literature.

Enlargement of the Prostate. Its Treament and Radical Cure. By C. MANSELL MOULLIN, M.D., Oxon., F.R.C.S., Senior Surgeon and Lecturer on Surgery at the London Hospital, Member of the Council of the Royal College of Surgeons, Examiner in Surgery at the University of Cambridge, etc., etc. Third Edition. Philadelphia: P. Blakiston's Son & Co. 1904.

This book now appears in its third edition which it certainly deserves to have reached.

We have reviewed the former editions of this work in these columns and are glad of the opportunity to reaffirm what was then said with regard to its excellent qualities.

The anatomy of the gland is very fully treated and the descriptions are clearly presented. Mr. Moullin in speaking of the sphincter at the vesical outlet says, "Nothing deserving the name of a sphincter is to be found in this situation in the healthy bladder of a young adult."

Mr. Moullin remains firm in his conviction as to the evils produced by the catheter and of the inferiority of the method of treatment by the catheter to that of radical operation. In the preface to this edition of his work he says with reference to this point: "It can no longer be doubted that enlargement of the prostate in a very large proportion of instances is perfectly capable of being cured, without undue risk, if only the consequences that follow from the indiscriminate use of catheters have not already inflicted irreparable injury upon the patient's bladder and kidneys." This opinion which was held to be a very radical doctrine when it was originally expressed by Mr. Moullin finds to-day not a few supporters both in England and in this country as well.

The writer is, as are most English surgeons, an advocate of the suprapubic in preference to the perineal radical operations, irrespective of the special conditions met with in different cases. In this position, they are not in accord with the majority of operators of France and America nor does the mortality of the high operation, whether taken in general or regarded from the point of view of the best records that have been shown by the most successful of those who habitually practice it, show so low a death-rate as that which attends the perineal operations when regarded from the same grounds. The technical measures introduced of late years, whereby the gland is made more accessible in the performance of the perineal operations, do not seem to have impressed the English operators as favorably as they have done many of their confrères of the two countries above mentioned, with whom they have been an important factor in connection with the perineal operation.

Under the influences of such works as this and the essay of Mr. Richardson the further and more confident advance in and adoption of the radical operative treatment of prostatic hypertrophy may be predicted, and among the many recent writings of great excellence that have been issued, they are both deserving of a high place.

New Methods of Treatment. By DR. LAUMONIER. Translated and edited from the second revised and enlarged French edition by H. W. Syers, M.A., M.D. Cantab., Physician to Out-Patients, Great Northern Central Hospital, Chicago: pp. 316. W. T. Keener & Co. 1904.

This book occupies a somewhat unique place in its description of new drugs and methods of treatment. The author has attempted to include in the book only those methods which have gained an established reputation. Many of them, unfortunately, have only an empirical standing. The book places on record in an accessible form methods some of which have not found their way into the text-books. Its value would be increased if the literature were more completely reviewed and more references given to the works quoted.

New matter has been added to the first edition of the work, including articles devoted to adrenaline, salicylate of methyl, ulmarene, quinoformine, collargol and the colloid metals.

Effects of Tropical Light on White Men. By MAJOR CHARLES E. WOODRUFF, A.M., M.D., Surgeon U. S. Army. New York: Rebman Co. 1905.

In a paper read before the Anthropological Society of Munich in 1895 von Schmaedel propounded the proposition that skin pigmentation of man was evolved for the purpose of excluding the dangerous actinic or short rays of light which destroy living protoplasm. Hence the reasons for the evolution of nigrescence and blondness, the reasons why Europeans have always failed to colonize in the tropics and why blonds disappear when they migrate from the north. Major Woodsuff was struck with the theory and instituted systematic search for data. A synopsis of his results he presented in a paper at a meeting of the Manila Medical Society in March, 1904. He has continued to follow the matter up and his paper has grown into the present small octavo of 357 pages, which the author considers offer conclusive proof of the truth of the theory.

Recent periodical scientific and medical literature has been freely drawn upon. The last chapter is devoted to practical rules for white men in the tropics, based on the supposition that acclimatization is impossible. On page 91, we find reference to William Rollins, and on page 126 he is called William Rolling.

Normal Histology and Microscopic Anatomy. By J. S. FERGUSON, Cornell Medical College. 8vo., pp. 738, with 462 illustrations. New York: D. Appleton & Co. 1905.

Dr. Ferguson's new manual of histology is one to be welcomed and seriously considered, for it is a compilation made with much care. The judgments that he expresses are based upon competent knowledge, and the presentation of his material is founded upon his large practical experience as a teacher. The book is accompanied by an excellent bibliography, which offers admirable selections of the more important recent articles, all grouped according to the chapters into which the book is divided, and the text of the volume shows that this bibliography has been extensively studied by the author. The illustrations are numerous; a goodly number of them are original and here published for the first time. Others represent a good selection from previous authors. Many of the new figures are half-tone engravings from photographs of actual sections. These constitute the least valuable and successful part of the book and seem to the reviewer far inferior in value to the figures based upon actual drawings. Only a few of the photographic illustrations made with a low power appear well. The others, we think, might be advantageously withdrawn in a future edition. The mechanical appearance of the book is excellent, and the impressions of the engravings given us by the printers are on the whole satisfactory. The paper used is rather thick, and the volume in consequence is a very heavy one. A lighter paper might be substituted to great advantage. The index is unusually full, and, so far as we have tested it, accurate and convenient. A special feature of the book is the fullness with which the microscopic anatomy, as distinguished from histology, is treated. This feature is especially valuable in the chapters on the Nervous System, which form what is perhaps on the whole the most useful and novel part of the new textbook.

In brief, it may be said that Dr. Ferguson's manual ranks among the best we have, and is, in my opinion, unquestionably the best of its kind of American authorship.

In way of criticism, a wish may be expressed that the genetic, or embryological, presentation of the subject had been adopted, so that the student should be familiarized with the development of tissues. The classification adopted of epithelia is one not likely to commend itself to histologists; thus, for example, a spheroidal epithelium can hardly be said to exist, because spheres cannot be put together closely with contact of their surfaces by large areas, and yet that contact of epithelial cells by large surface areas is one of the fundamental and never-absent peculiarities of the tissue. Neither is the classification of the various forms of connective tissue felicitous, for it does not seem either to accord with our present knowledge or to be likely to lead the student to form correct notions of the characteristics of the group of connective tissues. In speaking of the cardiac muscle, he describes it as consisting of separate cells joined together, a description which the researches of Haidenhain render no longer possible. The red corpuscles are still erroneously described as biconcave discs.

So one might go on through the successive chapters, pointing out here and there blemishes, but even after the completion of all this ungracious criticism, the manual would still remain one of substantial merit, and would still deserve a cordial welcome.

Aequanimitas: With other Addresses to Medical Students, Nurses and Practitioners of Medicine. By WILLIAM OSLER, M.D., F.R.S., Professor of Medicine, Johns Hopkins University, Baltimore. Philadelphia: P. Blakiston's Sons. 1904.

The address which gives the titlepage to this volume is a short one of nine pages delivered as a valedictory in 1889 when Dr. Osler was about to sever his connection with the Medical School of the University of Pennsylvania and go to the Johns Hopkins in Baltimore. We find nothing in it calculated to arouse antagonism, or animosity, and both title and precepts must have come home to the writer since the delivery of his most recent address, sixteen years later, also a valedictory. This address is followed by seventeen others delivered upon a variety of topics at various times and places. The last address has for a title "The Master Word in Medicine," and was given at the University of Toronto in 1903, where Dr. Osler entered as a student thirty-five years before, and from whence he set out on those Wanderjahre which have lasted with intermissions ever since.

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PANAMA CANAL SANITATION.

DR. CHARLES A. L. REED, Chairman of the Legislative Committee of the American Medical Association, has returned from a visit of inspection lasting fifteen days to the canal zone of the Isthmus of Panama. Immediately on his return, March 1, he filed by request with the Secretary of War at Washington a report submitting his observations relative to the status of sanitation and of the sanitary department in the canal zone and in the cities of Colon and Panama. This report, a lengthy one, is published in full in the issue of the *Journal of the American Medical Association* for March 11. When the appointment of a Canal Commission was under consideration last winter Dr. Reed was active with others in urging upon the President the appointment of a medical member, and Colonel Gorgas of the army was suggested for the position. No medical man was named on the commission, but Colonel Gorgas was appointed chief sanitary officer under the commission with Major de la Garde, Lieutenant Lyster and Dr. Carter as associates — most competent men. It was pretty generally recognized that sanitation was the primary and fundamental problem to be solved.

The President on the formal installation of the Isthmian Canal Commission said to that body:

"There is one matter to which I wish to ask your special attention — the question of sanitation and hygiene. You will take measures to secure the best medical experts for this purpose whom you can obtain, and you will, of course, make the contractors submit as implicitly as your own employees to all the rules and regulations of the medical department under you. I presume you will find it best to have one head for this medical department, but that I shall leave to your own judgment."

According to Dr. Reed, the President subsequently said to him, "that by having Colonel Gorgas placed in full charge of the sanitary work instead of on the commission itself, as had been urged by the medical profession of the United States, he would be untrammeled with extraneous duties and would consequently have better opportunity to make his work effective than if he were actually a member of the executive board."

As a matter of fact the commission subsequently, as stated by Dr. Reed, "provided for the creation of a board of health with power to formulate regulations which would become effective only after approval by the commission, or, in cases of emergency, only on the approval of the governor of the canal zone. Thus the chief sanitary officer who had been sent to the zone to clear it up and to make it ready for the actual work of the engineers had his discretion limited to the enforcement of regulations that had first been adopted by the commission or by a board of health; in which latter event it had to be sent generally to Washington to be endorsed by the commission, or, in cases of emergency, it could be approved or rejected by the governor of the zone.

"It thus came about that the chief sanitary officer, whom and whose department the medical profession had asked to be made largely autonomous, whom and which the President himself had obviously intended should be largely autonomous, was, by the action of the commission, more especially Mr. Grunsky, subordinated to the governor of the zone; to the chief disbursing officer; to the chief of the bureau of material and supplies; to Mr. Grunsky; to the commission; to the Secretary of War; to the President; subordinated, in fact, in the seventh degree from the original source of authority. And this is the state of affairs on the Isthmus to-day. One cannot but be impressed with the anomalous condition by which a man of Colonel Gorgas' distinction, the foremost authority in the world in solving the peculiar problems that are connected with sanitation on the Isthmus, has been made subordinate of a whole series of other subordinates who are confessedly ignorant of the very questions with which he is most familiar."

Dr. Reed follows this general statement with a detailed account of how this machine does not work, and of the commission's petty antagonisms to the sanitary department.

In another portion of his report Dr. Reed

discusses the question: Why is there yellow fever in Panama? He concludes, in the light of the facts which he adduces and remembering the results achieved by Colonel Gorgas in Havana, that the responsibility for the present existence of yellow fever on the Isthmus and for its apparent increase can be placed nowhere else than on the Canal Commission. Again, in reference to malaria, which is to be regarded as a more serious isthmian pest than yellow fever, the campaign against it has been thwarted by the Canal Commission.

In view of the facts which he has presented, and of others which might be presented, Dr. Reed urges, in closing his report, that the President should ask for the resignation of the commission.

REPORT OF THE MASSACHUSETTS GENERAL HOSPITAL.

THE ninety-first annual report of the trustees of the Massachusetts General Hospital appears in its usual form. The changes which have taken place during the past year are not so great as in several preceding years. Nevertheless, the work of the hospital, as shown in this report, has been maintained at its usual high standard and has in certain respects been rendered more efficient. No new buildings have been completed during the year, either at the General Hospital in Boston or at the McLean Hospital in Waverley. The chief needs at the present time are an additional woman's building at the McLean Hospital and a house for nurses at the same institution. Fifty cases have been refused treatment during the year for want of hospital space, and the nurses are living and working under certain disadvantages because of the lack of a separate building.

The most significant innovations during the year have been the installation of a Zander apparatus under the direction of Dr. Max Boehm, and the addition to the services of the out-patient department of an orthopedic department under the direction of Dr. J. E. Goldthwait and Dr. Robert B. Osgood. The Zander apparatus has been widely used, both for the benefit of patients resident in the hospital and for out-patients, and also for certain private patients sent to the hospital for special treatment. The work in this department has been ably managed and has begun to show results of importance, although a longer time must naturally elapse before definite statements may be made regarding its efficiency in special classes of disease. The orthopedic department has long been a definite want. Through its agency, many conditions may now be treated at the hospital which previously were of necessity transferred to other institutions. The year has also been notable in the fact that the new out-patient building has completed its first twelve months of service. The building has proved entirely adequate to the demands made upon it, and the work has been conducted with far more satisfaction to the physicians than ever before. The facilities for teaching have also been very greatly enhanced by the conveniences of this new building.

Credit has been brought to the city, and especially to the Massachusetts Hospital, by the award of the Samuel D. Gross prize to Dr. J. H. Wright, director of the clinico-pathological laboratory, for a thesis on "The Biology of the Micro-organism of Actinomycosis," the work being done at the hospital laboratory.

It appears from the report that the total number of patients treated during the year was 5,486 as against 5,341 in 1903, the number of paying patients in whole or in part being 2,053. In the out-patient department the new cases numbered 25,082 as against 27,865 in 1903. The donations during the year were greater than in 1903. One of the donations of $5,000 has been invested as the nucleus of a fund for the establishment of a department for scientific research. A certain sum of money has also been appropriated for the publication of the results of deserving medical and surgical work done at the General Hospital. Owing to the establishment of the new and somewhat elaborate system of records the medical and surgical statistics, particularly for the out-patient department, are far superior to any hitherto published.

In general, the report gives evidence of the careful and progressive administration of a great charity.

A MISSIONARY DOCTOR.

WE have previously commented upon the work of Dr. Wilfred F. Grenfell among the deep sea fishermen off the coast of Labrador. It is, no doubt, generally known that Dr. Grenfall, in addition to being a member of the Church of England, is also a physician, and that his work in Christianizing the inhabitants of the northern regions is combined with a very liberal share of attention to their bodily wants. The result of this practical type of Christianity, according to reports which he has recently been making in Boston and New York, has been most gratifying.

Recognizing, as he has, the practical impossibility as well as undesirability of appealing purely to the religious instinct which is supposed to be latent in men, he has begun his work of reformation by establishing hospitals, encouraging saving, forming co-operative stores, and ministering primarily to the serious illnesses, both surgical and medical, to which this class of men is peculiarly exposed, owing to the highly dangerous character of their calling.

For six months of the year the territory covered by the mission is entirely frozen in so that navigation is prohibited. During this period much work is done on shore through the agency of dogs and sledges in visiting distant hamlets and in providing for the wants of the people. During the summer months cruises extending over a distance of three thousand miles are made by the boats of the mission which now number upwards of a dozen.

Judging from Dr. Grenfell's personal statement of his work, which he does not color highly in the narration, it appears that an element has been introduced into the lives of the fishermen which is likely to have a wide influence upon their character in future generations. Dr. Grenfell insists upon the necessity of as good medical treatment for his patients as may be had in any other part of the world. This ideal he has been able to realize in very considerable degree through the work of physicians who are associated with him. Two physicians from Boston, versed in special branches of medicine, have agreed to accompany him in his coming cruise, and we are inclined to think that, as the work is now organized, there should be no dearth of men willing at least to go for short periods of time. No doubt such work as Dr. Grenfell is doing among the fishermen is possible elsewhere, but we imagine relatively few men are so capable as he, of combining in a common sense fashion the religious and purely practical elements of their calling. It is hardly be doubted that Dr. Grenfell will receive the aid and encouragement which he is soliciting.

THE QUESTION OF MEDICAL CHARITY.

In this issue of the Journal, we publish a series of investigations and opinions on the general subject of medical charity. A perusal of these papers must indicate to the reader that we have before us in this matter a problem which is widely recognized and of serious import. It is no less evident that, however general the feeling may be regarding the abuse of privileges by patients able to pay for medical services, opinions must differ regarding a feasible means of correction of the evil. As a matter of fact the whole development of our hospital system, which must be regarded from one point of view as a distinct medical advance during the past fifty years, is inimical to the interests of the individual physician. For many years we have been striving by all means in our power to overcome the prejudice against hospitals on the part of the common people; now that this prejudice has in great measure been allayed we are seeing, in the increasing abuses to which the hospital system is exposed, a natural result of our endeavors. Evidently a compromise of some sort must be made if our hospitals are to continue and develop on the one hand, and if on the other the rights of the individual physician are to be maintained. It is also clear that the solution of the problem can be brought about only through long experience and testing of methods, with such discussion from time to time as the varying aspects of the question may demand. We believe that the papers presented in the earlier part of this issue express adequately the present opinion of thinking men on this question. That some of these opinions will be modified as further experience accumulates is not to be doubted. In the meantime it behooves the medical profession on the one hand and the hospital authorities on the other to endeavor by every means in their power to minimize the evil which exists and which, to our mind, must exist in greater or less degree under present hospital arrangements.

MEDICAL NOTES.

Dinner to Dr. William Osler. — A dinner will be given to Dr. William Osler preliminary to his departure for England at the Waldorf-Astoria in New York on the evening of Tuesday, May 2.

Appointment of Professor Paul Ehrlich. — It is announced that Dr. Paul Ehrlich has received an appointment as professor at Göttingen. For some years past, Dr. Ehrlich has been director of the Institute for Experimental Therapeutics at Frankfort.

Centenarians. — Mrs. Charity Cotter has recently died at Cold Spring, N. Y., at the reputed age of one hundred and seven years. She is said to have remembered distinctly the War of 1812 and to have seen Lafayette when he visited America in 1824.

A Seminole Indian, known generally as "Old Fish," has also recently died at Shawnee, Okl., at the stated age of one hundred and ten years. He fought against the country in the War of 1812, and also in the Seminole wars. He served as a volunteer soldier during the Civil War with distinction. Since that time he has been particularly known among the Indians as a doctor.

PLAGUE. — It is reported from Calcutta that there were upwards of thirty thousand deaths from plague last week. The number of deaths from this disease in India was over 800,000 in 1903. The disease is almost always fatal and is apparently spreading. Naturally the Indian government is making every effort to eradicate the disease.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon March 15, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 25, scarlatina 30, typhoid fever 8, measles 9, tuberculosis 55, smallpox 0.

The death-rate for the reported deaths for the week ending March 15, 1905, was 18.34.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 11, 1905, was 214, against 247 the corresponding week of last year, showing a decrease of 33 deaths and making the death-rate for the week 18.17. Of this number 97 were males and 117 were females; 208 were white and 6 colored; 123 were born in the United States, 88 in foreign countries, and 3 unknown; 47 were of American parentage, 134 of foreign parentage, and 33 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 38 cases and 2 deaths; scarlatina, 25 cases and 1 death; typhoid fever, 3 cases and 1 death; measles, 10 cases and no deaths; tuberculosis, 45 cases and 32 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 38, whooping cough 0, heart disease 24, bronchitis 4, and marasmus 1. There were 9 deaths from violent causes. The number of children who died under one year was 27; the number under five years 40. The number of persons who died over sixty years of age was 60. The deaths in public institutions were 67.

THE QUESTION OF WATER FOR SOLDIERS. — Dr. Charles Harrington, Secretary of the State Board of Health, has recently read a paper before the medical officers of the Massachusetts Volunteer Militia on the subject of "Choice, Examination and Protection of the Water Supply for Military Camps." The meeting was a large one.

REAPPOINTMENT OF DR. HENRY P. WALCOTT. — Dr. Henry P. Walcott has been reappointed a member of the Metropolitan Water and Sewerage Board.

DR. F. W. DRAPER RESIGNS AS MEDICAL EXAMINER. — Dr. F. W. Draper, who has served with much credit and distinction for twenty-eight years as a medical examiner of Suffolk County, has sent to the Governor of Massachusetts his resignation of this office to take effect at the expiration of the current term, June 30 next. Dr. Draper was one of the original appointees under the Medical Examiner Law when it first went into operation.

THE LYNN HOSPITAL. — The twentieth annual report of the Lynn Hospital for the year 1904 shows a steady increase in the service it is rendering the public. During the year 1904 1,441 patients were admitted as contrasted with 1,253 for 1903 and 772 for 1898. The number of cases treated in the out-patient department was 4,801, and 85 were cared for in the maternity ward. It is stated that an increasing number of patients are paying for their care and treatment at the hospital.

BEQUEST TO PEABODY HOME FOR CRIPPLED CHILDREN. — By the will of the late W. H. Williams the Peabody Home for Crippled Children in Hyde Park, Mass., receives $5,000.

DEATHS FROM STRYCHNIA. — Several cases have of late been reported in the daily press of deaths in children resulting from strychnia poisoning through eating tablets. Another case is now reported from Haverhill, Mass., where a child of two ate strychnia tablets in sufficient number to cause immediate convulsions and death. Dr. E. S. Boland called attention to this danger in a letter published in this JOURNAL, Feb. 16.

NEW YORK.

VERDICT FOR MANSLAUGHTER. — On March 8, Judge Vail in the Union County Court sentenced to one year in the state prison, Mrs. Mary Hart, the former matron of the Elizabeth (N. J.) Day Nursery, who was recently convicted of manslaughter in causing the death, by scalding in a bathtub, of a four years' old child in the institution.

Deaths from Cerebrospinal Meningitis. — The Board of Health of Hudson County, N. J., reports that during the months of January and February there were 30 deaths from cerebrospinal meningitis. This is more than half as many as occurred during the entire year 1904, and would seem to indicate that the epidemic of the disease prevailing in New York had extended across the Hudson River.

Comparative Mortality of New York and London. — Dr. Darlington recently gave out a comparative statement in regard to the death-rates of New York and London. In 1904 there were 77,985 deaths in New York, as against 77,094 in London. As the estimated population of the two cities is respectively 3,666,000 and 4,684,000, the death-rate per thousand in London was, therefore, 16.6 and in New York, 20.23. In 1903, however, the death-rate in New York was 18.8. One of the principal causes of the higher death-rate in New York is, no doubt, the prevalence of diarrheal diseases among the infants and young children of the crowded tenement-house population during the warmer months of the year. In 1905, when the summer infant mortality was considerably smaller than in many other years, there were 5,636 deaths of children under two years of age, as against 4,801 in London. As regards smallpox, the conditions were much better than in London, while there were more deaths from scarlet fever and diphtheria than there. In New York there were 5,175 deaths from accident, as against 4,801 in London, but the "Slocum" steamboat disaster added nearly 1,000 to the number.

The Bureau of Charities and Tuberculosis. — A committee is being organized in Brooklyn, under the auspices of the Bureau of Charities, for the control and prevention of tuberculosis. It is to consist of about thirty prominent physicians, representing hospitals and dispensaries, and others interested in the subject, and Dr. J. H. Raymond, for many years head of the Brooklyn Health Department, has been chosen temporary chairman. The general aims of the committee are to act in coöperation with the Board of Health, to conduct a campaign of education among the ignorant by means of lectures and information leaflets, to aid in establishing a special municipal dispensary and to secure additional facilities for the care of tuberculosis patients at existing institutions. In this work the committee will have the advantage of the efficient district nursing service already established by the Bureau of Charities. Under the Red Cross instruction and district nursing committee of the bureau there are at present six trained nurses engaged in systematically visiting the homes of the poor.

Miscellany.

TREATMENT OF SNAKE BITE BY PERMANGANATE OF POTASH.

In the *Indian Medical Gazette* for February, 1905, Dr. Leonard Rogers describes five cases of snake bite successfully treated by the local application of permanganate of potash. The patients were bitten by highly poisonous snakes, and the wounds were in several cases primarily treated by a tightly applied ligature. The cases in addition were treated by incision with a local application of permanganate of potash with resulting recovery. In commenting on this treatment Dr. Rogers alludes to a series of experiments which he has been making on methods of treating snake bites. He believes that under ordinary circumstances the amount of poison injected into the wound by a cobra is quite sufficient to be fatal. Ordinarily the amount of poison obtained from freshly caught cobras is equal to ten times a fatal dose.

The treatment consists essentially in a free incision at the site of the wound, followed by an application of a small amount of crystals of permanganate of potash moistened with water. Undoubtedly the rapidity with which such treatment may be applied after the receipt of the injury is the important element in its success. In the cases reported the dissemination of the poison was prevented by ligatures in several instances, and the radical surgical treatment applied very shortly thereafter. The importance of an efficient treatment of snake bite in India is apparent, when one considers the great number of deaths resulting yearly from this cause.

EPIZOÖTIC PLAGUE IN SYDNEY.

The report of the Board of Health of Sydney, New South Wales, on a third outbreak of epizoötic plague at Sydney is in our hands, the report being dated the seventh of December, 1904. The outbreak described began on the twelfth of May, 1903, and was eradicated on the fifteenth of August of the same year. The method pursued in combating the disease was by means of an elaborate staff of rat catchers whose duty it was to exterminate the rats and mice now recognized as conveyers of the disease. During six months 46,472 rats and 22,814 mice were paid for by the authorities. The entire number of animals killed amounted to 88,829. In spite of this fact the rat tribe as a whole was not materially affected. This wholesale destruction of rats has given place only to those frequenting plague infected premises, with the result that the dis-

ease is adequately controlled. It appears, then, that the infection is not widely carried from certain definite spots. It is of interest that during this epizootic plague among animals but two cases occurred in man.

Correspondence.

THE GENERALIZATIONS OF DR. OSLER.

READING, MASS., March 10, 1905.

MR. EDITOR: The generalizations of Dr. Osler in his farewell address, which have excited so much comment, both in the medical and lay press, ought to be tested by facts before they are allowed to influence too many of us to "throw up the sponge" (or resort to it). These facts have been brought up in great numbers in instances from financial and political life where usefulness and success have been preserved long beyond his limit. The distinguished lecturer would no doubt correctly reject many of these as being instances, not of late activity, but merely of late publicity, the real work having been done much earlier; but there are others not so easily disposed of and enough of them to call for more than a brief admission that there may be rare exceptions to the rule. As to distinguished fame a great deal depends upon opportunity. The courage and dash of Farragut were probably as great when he was a midshipman on the "Essex" as when he passed the forts at New Orleans or Mobile, but if he had been retired at sixty, he would never have been known even by name to the present generation.

One of his most illustrious successors would have been equally unknown if Dr. Osler had his way, He escaped by only a few months the two years more liberal United States law which came very near preventing the first lieutenant of the "Mississippi" from becoming the victor of Manila. The margin of the rival claimants of the victory at Santiago was a little larger.

Von Moltke was well over sixty when he was made chief strategist in the war against Denmark and the Austro-Prussian war, before which he would have been unknown to the world outside of the Berlin war bureau. He was more than seventy in the Franco-Prussian war. These were intellectual achievements of a high rank, whatever the philanthropist may say of them from the ethical side, and however much we may wish to minify the claim of the soldier to the universal admiration of the world.

But there is a case more to the point in our profession and in a branch of it which should have been specially considered by one who thinks that the worst paintings, the worst novels and the worst poems are the productions of men over sixty. He certainly could not have said it of works on pathological anatomy.

Giovanni Battista Morgagni was an extremely brilliant young man. He acquired fame and fortune long before he was forty, and he devoted himself not only to practice, but to medical research for many years after. It was when he was fifty-eight years old, while he was taking a vacation after editing the works of his teacher Valsalva, that it was suggested to him that he should embody his own observations in a permanent form. This was done in a series of letters, afterwards collected and published in systematic form as the monumental work "*De Sedibus et causis morborum per Anatomen indagatis*," completed in his eightieth year, reprinted and translated several times before his death ten years later. This was not a learned compilation like its only predecessor in the same field, the "*Sepulchretum*" of Bonetus, but an epoch-making work of originality, generally regarded as the foundation of modern pathological anatomy, based upon careful observation of his own dissections with clinical notes and comments.

Our brilliant confrère has two more years to prepare to begin a rival work, and after that more than two decades to bring it to completion, and after that again another in which to revise the new editions which will undoubtedly be called for.

He need not have gone far beyond the city where his address was delivered to find men of his own profession doing excellent work in their respective lines, five, ten, or twenty years beyond his limit. To say that this is not their best work is a remark only important with reference to their former, and may or may not be true; while the estimate that it could be done better by younger men is simply begging a question which should be decided only by observation and not by surmise. They have a right to be judged by what they actually do and not by what one thinks somebody else might do in their places.

There is more apparent justification for Dr. Osler's views in looking at the highest grades of talent than at those which are lower and consequently more numerously filled but still distinctly above the average. But although the contrasts between the young and the old are more striking in this way the difference in principle is not great. The men of extreme talent, the geniuses, the epoch-makers are rare at any age. The really new ideas are not born into the world with any bewildering rapidity at the college commencement season, either among the A.B.'s or the LL.D.'s. But we are overwhelmed with new facts, new combinations, new applications.

The man who has in him the material for heading a distinct advance in art or science or morals will undoubtedly have given tokens of it to the world, or to his part of it, before he is forty, but he is too exceptional, too rare a specimen to make a rule for the termination of his own career. After he has got to be sixty the world will have become accustomed to him from his own teachings or those of his followers, and will be less given to admiration and astonishment at his views although they may be just as forcibly urged. He will be less in advance, not because he has gone backward, but because others have caught up, because the ideas which were once peculiar to him are now common property.

The startling utterances of the prophet of thirty, the heretical epigrams of "the live man in the pulpit" become, as the world moves on with him — and perhaps on account of him — the commonplaces of the staid and conservative pastor at sixty.

It was a startling innovation, much more so thirty-five years ago than it would be considered now, when the corporation of Harvard recognized a young layman as fit to be the new president, and the first six years of his administration which were needed to bring him up to the maximum of efficiency, wrought striking changes in the universtiy not merely in detail, but much more in spirit and tendency, as we of the professional schools knew as well as any. Can any one say that the later years which have now carried him far beyond the dead line have not been equally fruitful, or suppose that any younger man in his place could have made the last decade more profitable to the college or the educational world in more directions of sane and beneficent activity?

Among the many suggestions often used in literature, from the popular adage to the witty essay or ponderous sermon, based upon analogies between vegetable growth and the development of human character, there is none more apposite than that which compares the latter to the ripening of fruits in different varieties of the same species. The apple which is delicious in September is insipid or rotten in March. Another growing on a tree which cannot be distinguished from the first except by the expert, needs the time and cold of winter to develop its full flavor.

The genus *homo*, species *sapiens*, has many varieties which cannot possibly be covered by any such strict and narrow averages as have been laid down by our colleague, who bids fair to furnish the most complete refutation of his own dicta.

E.

DR. OSLER'S FAREWELL ADDRESS.

ROXBURY, March 9, 1905.

MR. EDITOR: My attention has been called to your editorial (March 2) on Dr. Osler's Farewell Address. That you may have a correct appreciation of the great majority of the laity in their estimation of the address, and of the great man, as he really is, when rated by it I would refer you to Ecclesiasticus, Chap. x, verse 1.*

Very truly yours,

AN OBSERVER.

* A wise judge will instruct his people; and the government of a prudent man is well ordered.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 4, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York	3,908,644	1,540	440	23.50	19.87	1.95	.65	3.90
Chicago	1,990,740	627	180	23.12	25.84	1.43	.48	—
Philadelphia	1,467,968	559	180	23.97	19.14	1.25	1.97	.18
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	234	59	20.51	18.37	.43	—	.43
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,950	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	85	28	11.76	28.22	1.17	—	—
Boston	617,950	230	59	21.30	16.09	8.69	.43	1.74
Worcester	136,925	44	4	9.08	6.81	—	—	4.54
Fall River	119,949	—	—	—	—	—	—	—
Lowell	104,402	35	8	22.85	14.27	2.86	2.86	5.71
Cambridge	100,922	33	8	12.12	18.75	—	—	—
Lynn	79,575	23	7	8.66	26.36	—	—	—
Lawrence	73,248	20	3	30.00	40.00	—	—	—
Springfield	73,090	21	3	19.05	19.05	4.76	—	—
Somerville	70,413	20	3	5.00	20.00	—	—	—
New Bedford	68,863	19	9	21.05	15.79	—	—	—
Holyoke	60,538	16	5	43.75	12.50	6.25	6.25	6.25
Brockton	46,601	12	2	16.67	—	—	8.33	—
Newton	39,810	16	3	12.50	18.75	6.25	—	—
Haverhill	39,061	12	2	33.33	8.33	—	—	—
Malden	37,205	6	1	16.67	33.33	—	—	—
Salem	37,188	8	2	—	—	—	—	—
Chelsea	36,498	19	2	21.05	15.79	—	—	—
Fitchburg	36,335	14	7	—	21.42	—	—	—
Taunton	34,577	17	3	29.41	11.76	5.88	—	—
Everett	30,309	4	—	—	—	—	—	—
North Adams	29,301	5	2	20.00	20.00	20.00	—	—
Quincy	26,796	8	1	25.00	12.50	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	11	2	9.09	9.09	—	—	—
Brookline	23,576	6	—	—	16.67	—	—	—
Pittsfield	23,570	—	—	—	—	—	—	—
Medford	21,956	6	—	16.67	16.67	—	—	—
Chicopee	21,692	10	5	20.00	30.00	—	—	—
Northampton	20,314	10	2	10.00	20.00	—	—	—
Beverly	15,207	5	—	—	40.00	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	4	1	25.00	—	—	—	—
Adams	14,745	5	1	—	20.00	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	1	—	100.00	—	—	—	—
Newburyport	14,478	7	2	14.30	—	—	—	14.30
Woburn	14,315	5	0	40.00	40.00	—	—	—
Melrose	13,619	7	1	—	14.30	—	—	—
Westfield	13,609	3	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	6	2	33.33	33.33	—	—	—
Revere	13,609	1	0	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	12,334	—	—	—	—	—	—	—
Southbridge	11,716	2	—	—	50.00	—	—	—
Watertown	11,575	7	0	—	28.60	—	—	—
Weymouth	11,356	0	—	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,732; under five years of age, 991; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 818; acute lung disease 701, consumption 456, scarlet fever 28, whooping cough 19, cerebrospinal meningitis 72, smallpox 3, erysipelas 17, puerperal fever 13, measles 9, typhoid fever 28, diarrheal diseases 86, diphtheria and croup 56.

From whooping cough, New York 5, Chicago 7, Philadelphia 2, Baltimore 3, Boston 1, Worcester 1. From scarlet fever, New York 22, Chicago 3, Philadelphia 1, Boston 1, Taunton 1. From cerebrospinal meningitis, New York 60, Philadelphia 1, Baltimore 1, Boston 4, Worcester 2, Lowell 2, Holyoke 1, Newburyport 1. From smallpox, Chicago 3. From erysipelas, Chicago 8, Philadelphia 6, Providence 1, Boston 2. From typhoid fever, New York 10, Chicago 3, Philadelphia 11, Boston, Lowell, Holyoke and Brockton, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending Feb. 25, 1905, the death-rate was 15.7. Deaths reported 4,704; acute diseases of the respiratory organs (London) 175, whooping cough 102, diphtheria 61, measles 110, smallpox —, scarlet fever 58.

The death-rate ranged from 3.7 in Hornsey to 20.8 in Stockton-on-Tees; London 16.0, West Ham 14.6, Brighton 11.9, Southampton 16.8, Plymouth 14.8, Bristol 14.7, Birmingham 14.4, Leicester 13.3, Nottingham 18.9, Birkenhead 13.5, Liverpool 16.6, Wigan 24.7, Bolton 13.8, Manchester 17.9, Salford 13.3, Halifax 13.9, Bradford 16.2, Leeds 13.1, Hull 14.7, Sheffield 14.2, Newcastle-on-Tyne 17.7, Cardiff 13.0, Merthyr Tydfil 19.8, Rhondda 20.0, Astor Manor 12.2.

METEOROLOGICAL RECORD.

For the week ending March 4, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 26	29.85	33	39	27	66	50	58	S W	N W	3	15	C.	O.	T.
M. 27	29.83	36	39	31	51	52	52	W	S W	15	12	O.	O.	0
T.. 28	29.82	39	39	21	62	66	64	S W	W	8	16	C.	C.	T.
W.. 1	29.98	28	33	19	51	51	51	N W	N W	10	15	O.	C.	0
T.. 2	29.98	34	33	14	58	54	56	W	N W	13	10	O.	C.	0
F.. 3	29.87	28	38	18	49	57	53	W	W	8	10	C.	C.	0
S.. 4	29.86	26	38	14	84	60	72	S W	N W	6	15	N.	C.	T.
☞	29.84		38	19			58							T.

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MARCH 11, 1905.

F. L. BENTON, passed assistant surgeon. Ordered to the Naval Recruiting Station, Philadelphia, Pa.

C. H. DELANCY, passed assistant surgeon. Detached from the "Petrel" and ordered to the "Marblehead."

D. B. KERR, passed assistant surgeon. Detached from the "Buffalo" and ordered to the "Boston."

J. D. MANCHESTER, assistant surgeon. Detached from the "Marblehead" and ordered to the "Petrel."

J. MILLER, JR., assistant surgeon. Detached from the "Boston" and ordered to the "Buffalo."

G. H. COOKE, medical director. Retired, detached from the Naval Recruiting Station, Philadelphia, Pa., etc., and ordered home.

S. S. RODMAN, passed assistant surgeon. Detached from the "Pensacola" and ordered to the "Ranger." March 23.

Cable from Commander-in-Chief, Asiatic Fleet, Cavite, P.I., March 9.

R. A. BACHMANN, assistant surgeon. Detached from the "Wilmington" and ordered to the "Villalobos."

R. H. MICHELS, assistant surgeon. Detached from the "Villalobos" and ordered to the "Wilmington."

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — There will be a meeting of the Society in Sprague Hall, Medical Library Building, on Monday, March 20, at 8.15 P.M. Subject: Some Prevalent Parasitic Diseases of the Skin. Dr. J. S. Howe, Scabies: Its Prevalence, Recognition and Its Treatment. Dr. J. T. Bowen, Impetigo Contagiosa: Cutaneous Abscesses Caused by Pyogenic Micro-organisms. Dr. C. J. White, Vegetable Parasites of the Skin & Modern Methods of Culture. Dr. F. S. Burns, Treatment of Parasitic Skin Diseases by Modern Methods, Especially the X-rays. To be illustrated by lantern slides. The medical profession is invited to attend this meeting.

ARTHUR K. STONE, M.D., *Secretary.*
CHARLES M. GREEN, M.D., *President.*

BOSTON MEDICAL LIBRARY MEETINGS. — The Boston Medical Library Meetings in conjunction with the Suffolk District Branch of The Massachusetts Medical Society. Program of Meeting of Section for Medicine on March 22, 1905: A Study of the Objective Methods of Diagnosis of the Stomach in a Medico-Surgical Clinic, with Report of Cases: Dr. H. F. Hewes. The Recent Surgical Conceptions of Non-malignant Disease: Dr. J. G. Mumford. Discussion, Dr. F. Pfaff, Dr. J. C. Munro, Dr. F. B. Lund, Dr. E. P. Joslin and Dr. C. L. Scudder.

GEO. G. SEARS, *Chairman.*
E. A. LOCKE, *Secretary.*

Original Articles.

THE TREATMENT OF APPENDICITIS.*

CAN WE WAIT FOR LOCALIZATION WHEN THE GENERAL PERITONEAL CAVITY IS INVOLVED?

BY C. A. PORTER, M.D., BOSTON.

It may be taken for granted that the advisability of operation in acute appendicitis, seen within forty-eight hours of the onset, meets at last with general approval. The proper treatment of circumscribed infection has long been clearly established. The treatment of the intermediate stages, *i*, *e.*, spreading or generalized peritonitis, however, is most unsettled, though accumulated experience is enormous and the importance of the subject hard to exaggerate. Some individual surgeons have arrived at conclusions sufficiently definite to guide them clearly in practice, yet these conclusions are inharmonious, if not opposite.

Murphy[1] of Chicago states emphatically that in advancing or general peritonitis he always operates unless the patient appears moribund; never flushes or sponges the general cavity; avoids breaking adhesions; contents himself with local drainage of the infection; and reports 16 consecutive cases, without mortality, as a result of such treatment. Joseph Blake,[2] in 1903, reported 10 cases of spreading infection without mortality; 7 of general infection with 57% mortality. Hotchkiss,[3] in 1904, reported 15 cases of advancing peritonitis without mortality. Both Blake and Hotchkiss always operated, invariably irrigated, and only drained the peritoneal cavity when necrotic exudate was present. In 81 cases of general peritonitis, operated on by many surgeons, at the Massachusetts General Hospital, from 1899 to 1904, the mortality was 67%. In 28 personal cases the mortality for the same period was 58%. Ochsner and others have become convinced that the conservative treatment later to be described is safer than operation. In his hands 33 cases of diffuse infection showed a mortality of 30%. Necessarily, without operation, the diagnosis rested upon clinical evidence alone.

While it is probable that a series of similar cases of spreading infection might recover under Ochsner's treatment, local operation, or general saline irrigation, and while another group of general infections would die, whatever treatment be employed, it is an obvious truism that in each case ideal treatment would give the best chance of recovery and would clearly point to one of these three methods of treatment. One is bewildered, in attempting to judge of the value of statistics, by the many different factors which must be considered before conclusions can be drawn. Few cases are alike, though certain groups are easily made. One must consider the age of the patient, the duration and extent of the process, the variety and virulence of the infection, the natural resistance, the presence or absence of adhesions, obesity, marked distension, general complications, anesthesia, rapidity of operation, skillfulness of assistants, and the impossibility of determining without operation whether generalized infection is actually present. Even with general operation doubt often arises as to the universal infectiousness of the exudate.

Judged by the mortality only, some of the above-quoted statistics may be used to argue for or against general irrigation, for or against local operation, or that either method may be employed to equal advantage. Ochsner's results, without operation, are twice as good as the Massachusetts General Hospital statistics, though in the latter a general peritonitis was proved to be present by operation.

Neither Murphy nor Hotchkiss, though they report consecutive cases, claim that such results in a larger series could be equalled, for it is obvious that diffuse peritonitis, however treated, must result in some mortality. If I interpret their views correctly, Murphy attributes his success to the fact that by rapid local operation he causes the least possible shock, does not increase absorption by rupture of adhesions, or injury to the peritoneum, and simply removes pus under tension. Hotchkiss, Blake and Fowler,[4] on the other hand, believe that irrigation through a small incision, with proper technic causes little shock, and that the increased absorption brought about by general interference is compensated by the removal of exudates which under the local operation would continue to be absorbed. Certainly they have demonstrated that general irrigation is not the unjustifiable procedure which some would have us believe.

An analysis of the 81 cases, from 1899 to 1904, at the Massachusetts General Hospital, shows, chiefly in the earlier operations, that the surgeon was influenced in his methods by the apparent importance of removing and draining all infectious exudates, without adequate realization of the condition to which such interference often reduced the patient, through shock at operation and subsequent toxic absorption. Many of the operations were prolonged, with large or multiple incisions, evisceration, general irrigation or sponging; numerous gauze and tube drains were inserted among the intestines. There were 57 deaths in this series and of these 57, two thirds died within two weeks, one third within twenty-four hours after operation. Though the condition of many of the cases at admission was desperate, and some were actually moribund, such a mortality — especially such a high immediate mortality — demands careful reconsideration of the methods and technic employed, and the selection of cases for operation, and may properly, I think, arouse some doubt as to whether operation *as performed* did not diminish instead of increase the patient's chance of recovery.

*The following papers were read at a meeting of the Section for Surgery, Suffolk District Medical Society, in conjunction with the Boston Medical Library, January 4, 1905, and also in part at an earlier meeting.

[1] Am. Jour. of Med. Sci., Aug., 1904. [2] Annals of Surgery.
[3] N. Y. Med. News, lxxxv, July, 1904.
[4] N. Y. Med. News, lxxxiv, May, 1904.

There is no reasonable doubt that cases of diffuse peritoneal infection recovered long before operations were performed for this condition. The clinical histories of such cases are clear and are occasionally confirmed by subsequent operation or post-mortem examination, at which universal peritoneal adhesions with an obliterated appendix have been found. While many, if not most, of these cases died under Alonzo Clark's opium treatment, some recovered. Absolute starvation, opium and hot fomentations was the routine treatment which some physicians preached and successfully practiced twenty-five years ago. Then came the operative period, when surgical interference, limited at first to evacuation of the abscess or removal of the appendix, soon extended its scope and attempted, by sponging and general irrigation through long incisions, to clean the general cavity. Evisceration and immersion in hot saline baths — barbarous as such treatment now appears — have been resorted to in the past. Attempts have also been made, through large glass tubes in the pelvis and loin, to carry on continuous saline irrigation. Opium was condemned before operation as it masked symptoms, after operation as it stopped peristalsis and caused constipation and distention, for side by side with the heroic operating period there developed the purgative treatment of peritonitis, especially with saline hydragogue cathartics. This was justified by the hope that thorough emptying of the large intestine would relieve congestion and thereby favor drainage of the contents of the appendix into the cecum, and that copious watery discharges would drain the fluid exudates formed by the inflamed peritoneum and favor absorption of the remainder. Distention, nausea, vomiting of foul material which regurgitated from the intestines, seemed to indicate such treatment. As a survival of these ideas, or in view of the general maxim that thorough cleaning out of the bowels is of value at the beginning of any disease, it is a matter of common experience that almost all cases of appendicitis, whether in the perforating stage or not, which come to hospital or are seen in practice, have been given purgatives.

Within the past few years the surgical treatment of appendix peritonitis has undergone some changes for the following reasons:

(1) The results of the very extensive operations have been most unsatisfactory.

(2) The temporary efficiency of all drainage in the abdomen and its inhibitory action on peristalsis and natural absorption has been demonstrated by the valuable experimental work of Clark and many others, who have also shown the wonderful power of the peritoneum to absorb and overcome, through leucocytes and antitoxins, large doses of bacteria.

(3) The results which were obtained under the long-forgotten starvation and opium treatment are recalled.

(4) Moszkowicz[1] has recently shown that the natural peritoneal resistance to infection is markedly increased when the peritoneum has been previously irritated by toxins, slowly diffused from the primary focus. Such experimental evidence is clinically confirmed by the cases which have recovered without operation or, having passed through a stage of diffuse infection with eventual localization, show at operation an abscess securely shut in by adherent intestines and omentum.

As many surgeors, even in cases of spreading or diffuse peritonitis, limit their interference to local operation and leave to natural resistance the remainder of the infectious exudate, it is clear that, in all the cases which recover, the peritoneum has been equal to its task. In view of the considerable mortality which still occurs, in spite of modern conservative operation, some surgeons have pushed their conservatism so far as to advise no operation at all, until the diffuse infection has become localized.

Roux of Lausanne states that since practitioners in his neighborhood have entirely abandoned cathartics from the onset of the attack and have starved their patients, 95% of the acute appendix cases subside or develop a local abscess.

Ochsner of Chicago has done most to advance the so-called conservative treatment of spreading peritonitis, which he has practiced for years. He believes in immediate operation when the patient is seen within thirty-six hours of the onset, or when signs and symptoms warrant the conclusion that infection is still limited to the appendix. In all patients who show evidence that infection is spreading or has spread to neighboring parts, he advises the treatment later to be outlined. His past experience with operation in such conditions, contrasted with the results which he now obtains, has apparently convinced him that cases thus treated, in spite of the complications which may develop through further extension of infection, have a better ultimate chance of recovery than if immediate operation be performed. Such a return to ancient practice and such extreme reliance upon natural peritoneal resistance must be supported, before such a radical change in treatment is justifiable, by results which are unquestionably better than those which modern conservative operators can offer. Let us carefully examine the treatment and the cases to which it has been applied.

From admission absolutely nothing is given by mouth, — no water, no cathartics. The stomach is washed out, thereby overcoming the nausea, vomiting and distention, and the patient is put in an exaggerated Fowler posture. Water is freely supplied by rectum or saline infusions under the skin, and small nutrient enemata are given every four hours. Large enemata are not given from fear of rupturing adhesions. Hot or cold applications to the abdomen are made and the treatment is kept up until the diffuse process has become localized or the patient has died.

This treatment is planned in accordance with Ochsner's belief that intestinal peristalsis is the most important means by which infection is spread. As such peristalsis is a result of at-

[1] Langenbeck's Archiv., lxxii, H. 4.

tempts on the part of the bowel to pass along its contents, or may be excited by cathartics, he interdicts cathartics and all fluids by mouth, and employs gastric lavage not only to control nausea and vomiting, but to keep the stomach absolutely empty and free from the intestinal contents, which are continually regurgitated into it. Under such treatment he claims that not only will the intestine be kept quiet by the absence of any stimulants to peristalsis, but that gradually through regurgitation of their contents they will become emptied, and as nothing is given which could ferment, the distention will diminish or disappear.

There is nothing in this treatment which is remarkable or unusual. With the exception of gastric lavage and saline infusion, both modern improvements, it is the starvation treatment previously mentioned as practiced by some physicians many years ago. But the importance of Ochsner's position in reality is not due to the treatment advised, which may aid natural resistance in some degree, but to the fact that he is willing to trust to non-operative treatment all cases which show evidence of infection outside the appendix itself. In a paper read before the Tri-State Medical Society, Oct. 17, 1904, he reports his results in 460 cases of acute appendicitis, in which he operated at once in 57% and delayed operation in 43%. He divides these cases into 4 groups, as follows:

	No. of Cases.		Deaths.	Mortality.
I. Acute appendicitis without perforation.	200	Immediate operation.	5	2½%
(6 cases entered within 36 hours of onset.)	55	Delay.	0	0%
	255			
II. Acute appendicitis, perforated or gangrenous, without abscess.	21	Immediate operation.	0	0%
(5 entered within 48 hours of attack.)	34	Delay.	0	0%
	55			
III. Acute appendicitis with peritonitis and abscess.	*38	Immediate operation.	1	2½%
(All entered after 3 days from onset.)	78	Delay.	2	2½%
	116			
IV. Acute appendicitis with diffuse peritonitis.	33	Delay in all.	10	30%

Though I have given, for comparison, in this table an analysis of all of his cases of acute appendicitis, I wish to call particular attention to those in which operation was delayed "until their condition seemed sufficiently improved to make the operation appear safe." In Groups I and II *immediate operation* in 221 cases resulted in 5 *deaths*. No death from *extension of infection* or subsequent operation occurred in the 89 cases selected for delay. Immediate operation in all cases might have given equally good, but not better, results. The mortality of the 310 cases, under operative and conservative treatment combined, was 1⅔%. After delay operation was without mortality.

Group III. Acute perforative or gangrenous appendicitis with peritonitis and abscess, 116 cases. "All of these patients entered the hospital after the third day from the beginning of the attack." "Many of these patients were received in desperate condition, with what seemed at first to be diffuse peritonitis, severe distention, tense abdomen, vomiting, bad facial expression, apparent shock, etc." Though Oschner does not state how many cases entered the hospital with a circumscribed abscess, compared with the number who showed evidence of peritonims or early peritonitis, it is fair to assume that, at the time of examination, a majority showed signs and symptoms of advancing infection, for immediate operation was performed in only one third of the cases, while conservative treatment was advised in the remaining two thirds. In the 38 cases operated upon at once, one death occurred. In the 78 cases in which operation was delayed, he had 2 deaths following subsequent operation.

Case I. Boy, fourteen, entered twelve days after onset. Temperature 102.2, pulse 100. Boy appeared very weak and ill; abdomen distended. After delay infection became localized in right iliac region, reaching beyond median line to left. Operation seventeen days from onset; circumscribed abscess; removal of appendix. Drainage. Death in two days, from peritonitis, as a result of bad technic.

Case II. Boy of six, entered on the seventh day after onset. Apparently mild attack. Mass in appendix region; muscular rigidity without distention. Routine treatment for forty-eight hours, with marked improvement. Operation ninth day from onset; circumscribed abscess; appendix removed. Drainage. Normal recovery until sudden death at end of twenty-four hours. No autopsy.

Though at first it might be claimed if operation had been performed at entrance that neither of the cases would have died, I think a more careful examination of the histories shows that, as both patients were improved by routine treatment, the deaths cannot fairly be attributed to delayed operation. Including these two cases, however, the mortality with operation postponed was 2½%, in no instance due to delay. If we consider in these 78 cases that exactly the indications (spreading infection) which would lead most surgeons to operate at once were interpreted by Ochsner as indications for delay, and also that "many of these patients were received in desperate condition," etc., I think these statistics, so far as they go, must convince the surgeon who advocates immediate operation that at least there may be two sides to the question, if they do not justify Ochsner's contentions. Adding the 78 cases in Group III to the 89 in Groups I and II, we have 167 in which operation was deferred, with a total mortality of 1.2%. Stated in another way, if the 2 fatal cases in Group III did not die from complications due to delay (and it seems fair to conclude that they did not), we can say that not a single case died from causes which could have been prevented by immediate operation. As all the cases in which routine treatment was advised showed signs and symptoms of more extensive or advancing infection, as compared with the cases of circumscribed abscess which

*A case of fecal fistula, which died after operation, has been excluded as it was not a case of acute appendicitis.

were at once operated upon, the results are still more in favor of delay as compared with the immediate operation. Immediate operation in 259 circumscribed cases gave a mortality of 2.3%.

Group IV. Unfortunately Ochsner gives no details of the cases in this last and most interesting group. Thirty-three cases were admitted with the clinical diagnosis, — diffuse peritonitis, 7 were in "a dying condition" at entrance and failed to improve sufficiently "to justify operation." Twenty-six cases presumably did improve after routine treatment as all were operated upon, with 3 deaths — total mortality 30%. No statement is made as to the clinical difference between the signs and symptoms of cases placed in Group IV — diffuse peritonitis — and those presented by the sicker cases in Group III "classed by Mynter as beginning diffuse peritonitis."

In all probability, without careful examination at operation, no such distinction can be made, and the same objection applies to the statistics of surgeons who perform only a right-sided operation, and on finding free pus, classify the case as one of diffuse peritonitis, using the adjective to mean diffused throughout the abdomen. The words advancing, spreading, diffuse, or general peritonitis are often loosely used by surgeons. Even after examination of the different parts of the abdomen by gauze swabs or irrigation, though the presence of turbid serum and fibrin may show that the process is general, unless pus is present or organisms are demonstrated by smear or culture, the case may properly be considered one of general *toxic* peritonitis, but not one of general *infectious* peritonitis. Though I entirely agree that for clinical purposes the distinction "spreading and diffuse peritonitis" is all that we can determine at operation, it is obvious that for pathological reasons such a classification is inexact. On this account we have statistics of cases of peritonitis which has spread beyond the appendix region, the value of which is directly proportionate to the accuracy of the method by which they were obtained. The methods of obtaining such data fall under the following heads:

(*a*) Through general operation organisms are demonstrated, by smear or culture, to be present, with swabs from the splenic region, hepatic region, central coils, left loin and pelvis.

(*b*) Through general operation, by irrigation, actual pus or very turbid serum has been washed back from all the regions mentioned.

(*c*) Through local operation, with pus among the central coils, and clinical evidence of a general process, as judged by marked tenderness, rigidity, free fluid in left loin.

(*d*) No operation; clinical evidence alone.

Though the clinical evidence without operation, or even with local operation, may be sufficient to render a diagnosis of diffuse peritonitis extremely probable, the results obtained by those who have confirmed the condition present by examination and have not relied upon their interpretation of the clinical evidence, are naturally most to be relied upon. Even though organisms be present throughout the cavity, their variety, and virulence as compared with the vital resistance, may still remain unknown. In Ochsner's Group IV, 7 cases entered moribund and died in spite of treatment. The 26 cases not moribund at entrance improved under treatment and were later operated upon, with 3 deaths, 11½% mortality. It is evidently impossible to compare the results of delay in this group with immediate operation as no immediate operation was done. What might have happened had delay not been used is purely a matter of speculation.

Using, for comparison, the statistics of other surgeons, who, however desperate the condition at entrance, have performed some sort of an operation, when it seemed that the patient would survive it, we have the following results:

			Mortality.
Hotchkiss,	15 cases.		0%
Murphy,	16 ,,		0%
Hawkes,	11 ,,		18%
Deaver,	86 ,,		31%
Fowler,	100 ,,		33%
Trendelenburg,	80 ,,		67%
Massachusetts General Hospital	161 ,,	diffuse.	66%
	81 ,,	undoubted general.	70%

Although such different results without further analysis are useless for exact comparison, on closer examination, however, the following factors appear:

(1) "Moribund cases" almost never survived general irrigation.

(2) "Moribund cases" rarely recovered even with simply local drainage.

As would be expected, recovery was in general influenced by the duration of the diffuse infection previous to operation and the duration and magnitude, etc., of the operative interference; showing a distinct tendency to improve in recent years, with more conservative operation, for example:

Massachusetts General Hospital	1899	25 cases.	Recovery	28%
	1903	33 ,,	,,	48%

The use of Fowler's position after operation has been proved to be most valuable. Fowler states that, though with older methods his mortality was in the neighborhood of 75%, in his last 100 cases of diffuse peritonitis, all of which were operated upon — the mortality was 33%. The most favorable claim, then, that can be made is that a large series of cases, treated by general irrigation, will probably show an average mortality of about 33+%.

Whether local operation, as advocated by Murphy, will in an equally large series prove superior to general irrigation is a question for future experience to determine. As all acknowledge the difficulties of general, or even local, operation on these advanced cases — difficulties due to the condition of the patient (vomiting, distention, perhaps obesity, or inadequate assistance, and the possible post-operative complications which may develop) — it is evident that Ochsner's mortality, 30%, compares well with that of *immediate operation*. Adding together the cases in these 4 groups — 200 cases in all, in which operation was delayed — the results are

so favorable that his method demands careful consideration.

First, because, if he is right, the advantages of his method should be considered, even if not adopted, in Classes III and IV, to a less degree in Classes II and I.

Second, if he is wrong (as most surgeons of equal or greater experience believe) and the conclusions which he draws are incorrect, though apparently supported by his personal experience and the reported experiences of some other surgeons with his method, it is of great importance that the errors in his deductions should be found out through a larger experience, and the limitations of his method defined.

Whatever the ultimate decision may be, there is little doubt that Ochsner's teachings have been of distinct value:

(1) They have emphasized the natural power of the peritoneum to resist and circumscribe peri-appendicular infection, when purgatives are not given and starvation, etc., is systematically carried out.

(2) They have shown that certain cases of spreading or diffuse infection, when the condition of the patient or unfavorable surroundings make operation unusually hazardous, may be brought, through his treatment, to a condition more favorable for later operation.

(3) That immediate operation, therefore, does not offer to all cases the only reasonable chance of recovery.

(4) That the possible or probable advantages of his treatment, compared with results of immediate operation, must be carefully weighed whenever the patient lives in a locality where a *good surgeon* cannot be obtained. Indeed, it may be questioned whether the mortality of all cases in Group IV and the sicker cases in Group III would not be less under his treatment, when a *very good surgeon* could not be obtained.

(5) The question may be raised, as a result of his teachings whether cases in Class IV and Class III, when no good surgeon can be obtained, would not do better under conservative treatment than if transported long distances to hospital.

Although this much is granted by those who advocate immediate operation, it must be clearly understood that Ochsner does not limit his treatment only to cases which are *unfavorable* for immediate operation, but that he believes it should be applied to *all cases* with infection outside the appendix, though operation be done by the best surgeons, under the most favorable conditions. It is with this general application of conservative treatment to *all* cases of *peri*-appendicular infection and delay for localization, that most surgeons take issue, for they fear that serious harm may result, should such treatment be adopted as a routine practice.

Though it is obviously unfair to hold a method responsible for bad results, when such a method is misapplied or misunderstood, some of Ochsner's own statements and the impression conveyed by his statistics may not unjustly be held responsible for a belief which I think is gaining ground among the general practitioners, not only in the middle West, but in regions farther distant, that delay with his treatment is safer than immediate operation in *almost all* cases of acute appendicitis.

He says: (1) "In my personal experience no case of acute appendicitis has died in which absolutely no food of any kind, and no cathartics, were given by mouth from the beginning of the attack."

(2) "With the evidences of extra-appendicular infection the routine treatment should be employed until the patient's condition makes operative interference safe."

Such statements give the impression that under his treatment the patient *will* improve. When, added to these and other similar statements, we find on examining statistics of the 200 cases (except the 7 in Group IV, who entered moribund) that not a *single case* failed to improve under routine treatment, the conclusion is not unnatural that Ochsner believes that *no case* properly treated from the onset will die, and that all cases of infection beyond the appendix will, by delay, be brought to a better condition for subsequent operation.

The improvement which followed his routine treatment with such uninterrupted regularity is one of the most striking and unexpected things in this paper. No case with spreading infection at entrance developed a diffuse peritonitis; no mention is made of left iliac abscesses or residual infections among the intestines; no fatal pneumonia, metastatic process, or intestinal obstruction occurred. Yet there is little doubt that such complications are more likely to occur the longer pus remains under tension within the abdomen. Ochsner was fortunate in this series of cases, and without in the least doubting his statements, these questions may not unnaturally arise:

(1) To how many cases does his first statement apply?

(2) Is not the impression conveyed much too favorable to the probable results which will occur with such treatment at the hands of other surgeons, or in another equally large series of his own cases?

(3) Though Ochsner advises operation within thirty-six hours to forty-eight hours of the onset, in the fatal cases in which immediate operation was done, does he not state that if in these delay had been instituted recovery would probably have occurred? As many general practitioners do not see their cases until thirty-six or more hours after the onset, at which time many cases already show signs of general peritoneal irritation or peritonism, though infection is still limited to the right iliac fossa, if not to the appendix itself, the whole tenor of Ochsner's advice is against immediate operation and in favor of delay, and there are some physicians who, though they have grasped the main objects of his method, apply it to early cases for the reasons above mentioned. There are many practitioners who only need such conservative teaching to lead them to throw their

influence against immediate operation, and the laity, brought with much difficulty to connect the idea of immediate operation with acute appendicitis, will not be slow in taking up the conservative view.

I feel convinced that the tendencies which may result from Ochsner's teachings are not fanciful imaginings, but represent dangerous possibilities. Therefore it is not to be wondered at that the surgeons who continue to believe in immediate operation in almost all cases of appendicitis, in all stages, decry Ochsner's method and through fear of the indirect, if not direct, influence of his published opinions, demand further proof and substantiation of the soundness of his views, even undervaluing the good points of his treatment. Such objections arise from the harm which may result if, owing to the general impression conveyed by Ochsner's statements and statistics, the general practitioner misapplies his treatment to *early* acute appendicitis, or in cases further advanced decides, without consultation, against operation.

What objections can be raised by the advocates of immediate operation to the employment of Ochsner's treatment in the class of cases defined by him as *really* suitable for delay, *i. e.*, those which show, after thirty-six to forty-eight hours from onset, clinical evidence of infection beyond the appendix?

(1) Immediate operation is in the position of the defendant; by it the mortality of appendicitis has been reduced to its present low rate; through bitter experience with the results of too radical operations in unsuitable cases, the surgeon has finally come to a clearer knowledge of *what should* and *what should not* be attempted. Though some surgeons have tried Ochsner's treatment and agree with his point of view, other surgeons have tried it in apparently suitable cases, and improvement did not follow, but the patient went from bad to worse. The majority of surgeons do not feel justified in refusing modern conservative operation, and trusting to natural resistance, until the advantages of conservative treatment have been demonstrated by a very much larger experience.

(2) Though a surgeon of Ochsner's large experience, in the great majority of cases, may diagnose the true condition within the abdomen, errors are bound to occur, increasing in number with the relative inexperience of the observer and the contradictory diagnostic evidence which certain cases present. Thus gastro-intestinal perforations, internal strangulations, etc., all of which demand immediate operation, may simulate appendicitis; or the presence of the signs of peritonism, or more or less general peritoneal irritation may determine the decision against operation, though the infection in reality is limited to the appendix, and operation could safely be performed. Circumscribed pelvic infections, owing to the resulting obstructive symptoms, are not infrequently mistaken for serious diffuse peritonitis. Though improvement may follow starvation, gastric lavage, etc., and spontaneous evacuation of the abscess take place, delay, with the attendant dangers of septic phlebitis or rupture into the general cavity, would be more dangerous than immediate operation.

(3) If at operation the surgeon finds a gangrenous or perforated appendix, with free pus among the adjacent intestinal coils and in the pelvis, he can claim, with fairness, I believe, that by the early removal of the cause of the infection more patients will be saved from a diffuse peritonitis than will develop such a process as a result of operation. On the other hand, if at operation the appendix is found wrapped up in omentum or the infection is limited by adhesions, however delicate, with only a little fibrin or slightly turbid serum in the neighborhood, it is probable that under Ochsner's treatment, localization would have occurred. Here the operator's responsibility increases, for the result will depend upon his skill and technic. Ochsner's treatment is distinctly less dangerous than bad surgery.

(4) It is possible that part, at least, of Ochsner's success with subsequent operation after delay is due to his knowledge and experience in selecting the *proper* time for interference, results which could not be obtained by other surgeons without equal experience with delayed operation.

(5) When at the time of examination infection is found to have spread beyond the appendix region, it implies a sudden entrance into the general cavity of infectious material, bad treatment by purgatives, etc., or inability of the natural peritoneal resistance, through adhesions, phagocytosis, antitoxins, etc., to react against the infection. Such failure to react may be temporary or permanent. Though Ochsner believes that conservative treatment will be followed by an ultimately smaller mortality than if immediate operation be done, the objections to such treatment will be better understood if the claims of those who advocate immediate local operation or general irrigation be next considered.

a. Local Operation. — The cause of the infection (the appendix) is removed, if easily accomplished; the pelvis is drained, with Fowler's position, for twenty-four to thirty-six hours; any exudate, which is free in the general cavity, gravitating towards the pelvis and away from the upper and more absorbing regions, tends to escape from the peritoneal cavity through the drain; operation is rapid, with relatively little shock; danger of evisceration is slight, incision is small, operation requires not more than one third of the time needed for general operation; the diffuse infection, though indirectly and temporarily influenced by dependent drainage, is left to natural resistance; phagocytosis and the antitoxic action of the peritoneal serum, etc., is not interfered with by irrigation. Such local operation, with all its advantages, when compared with general irrigation, fails to meet the indications in one important particular: the removal of the infectious and toxic exudates from the general cavity, which should obviously be removed, provided this could be accomplished

without more harm to the patient than would result were they left behind.

b. General Irrigation, or Sponging.

(1) Sponging has this one advantage, and this only, that the chances of spreading infection thereby are less than with irrigation and the possible unfavorable results from absorption of saline fluid and toxins are not present. Sponging is slower, and causes more injury to the peritoneum than would result from irrigation, which is mechanically the best and most rapid method of removing fluid exudates.

(2) *General irrigation* with Tait or Blake tube with normal saline solution at temperature of 110° to 115° F.

TECHNIC.

(1) Patient raised to angle of 20° to 30°. *Complete muscular relaxation necessary.*

(2) Short right rectus or median incision.

a. Appendix abscess (if present) evacuated and appendix removed. Then general irrigation (Hotchkiss) or right iliac fossa and pelvis walled off. Irrigation with long retractor to splenic region first carried out, especial care being given to provide adequate *exit* for fluid, by proper retraction of margin of wound, otherwise forced evisceration, due to accumulation of fluid in dependent parts, will be liable to occur.

Blake's tube is valuable, provided return flow is not interfered with by omentum or intestines blocking holes. Such accidents lead one to prefer Tait's tube in the long run.

Next, right hypochondrium, central coils, etc., washed clean, general cavity walled off, pelvis flushed and drained.

Finally, peri-appendicular infection evacuated and drained, and if deemed expedient, appendix may be removed. The intention of such a general irrigation is to cleanse, first, the parts least or most recently infected, to wall off such temporarily cleaned areas, and then to remove or drain the original focus of infection. The peritoneum is closed, except for drainage area, and patient put in Fowler's position.

Advantages. — *a.* The peritoneal cavity is freed from the major portion of the infectious and toxic exudates, with the least possible trauma, and may thereby be put into condition to overcome the few remaining organisms.

b. The danger from toxic absorption, through dependent drainage, is, for a time, at least, diminished.

c. The hot saline solution acts as a stimulant.

d. Such thorough irrigation diminishes the chances of subdiaphragmatic abscesses or residual infections among intestinal coils, as compared with local operation or no operation at all. Cases after such general irrigation usually show evidence of marked improvement by the next day, or, failing to react, die more quickly than after local operation or conservative treatment. Occasionally high temperature and pulse (probably due to shock, trauma and increased absorption) follow such extensive interference, with subsequent fall towards normal and convalescence. At autopsy the general cavity is, as a rule, surprisingly free from signs of infection. Absorption of exudates, seen at operation, has often occurred.

The advantages of irrigation as contrasted with local operation are particularly favorable in the cases of *very recent* general infection with relatively little evidence of injury to the serosa, especially in the rarer cases when a circumscribed infectious area has suddenly discharged its contents into the general cavity, previously unirritated by gradual toxic absorption. The bad results which follow conservative treatment or local operation in such cases are well recognized.

Disadvantages. — Thorough irrigation of the general peritoneal cavity is a major operation, not to be undertaken without skilled assistance and favorable surroundings, nor with poor general condition of patient, very marked distention, obesity, etc. In infections which have been apparently generalized for more than forty-eight hours the rupture of adhesions with increased absorption is so frequently followed by fatal toxic absorption, as to make general irrigation inadvisable. With general irrigation, operation is prolonged, the danger of evisceration and shock is increased. Unless the patient's condition after operation is such that Fowler's position may be assumed, serious toxic absorption may occur. The dilution of the liquid exudates with saline infusion, and the mechanical removal of phagocytes, etc., may interfere with natural resistance and leave some organisms in the general cavity, which will multiply before natural inhibition can again become active. As compared with local operation and drainage, general operation appears to have more disadvantages than advantages, yet, since the extensive operations of the past with multiple incisions, etc., have been abandoned, and surgeons have come to realize more and more that general irrigation in diffuse peritonitis must be limited to the shortest possible duration and the least possible trauma (guided more by the condition of the patient than the amount of the exudate), the results of general irrigation, thus employed, justify its further use.

When doubt exists, on opening the abdomen, as to the advisability of general irrigation or local operation with drainage, local operation should be preferred. In cases with history and symptoms of a diffuse infection of some days' duration, with much evidence of local infection, general operation is contra-indicated and local operation has little to offer when compared with conservative treatment; on the other hand, with evidence of a local process with toxic absorption, more marked than that of peritonitis, local operation with drainage is indicated rather than general operation or conservative treatment, etc.

The objections to the general adoption of Ochsner's conservative treatment of peritoneal infection from appendicitis arise, therefore, from two entirely different causes, which have been analyzed above.

a. The harm which may result from some of his statements and a too favorable interpreta-

tion of his results, or misapplication of his methods to early appendicitis.

b. Objections raised, with thorough understanding of his position and point of view.

I. A natural hesitation to adopt such a radical change in treatment, until Ochsner's results are confirmed by other surgeons or in a much larger series of his own cases.

II. Belief that the invariable improvement which follows delay in his 193 cases (7 moribund at entrance excepted) was unusually fortunate, and not to be expected in another similar series.

III. Fear of delay in some cases which may be erroneously diagnosed as appendicitis, though in reality requiring immediate operation.

IV. Experience with cases operated upon on the third or fourth day which show no evidence of limitation of process, and the impossibility of diagnosing such cases without operation.

V. Belief that the results of conservative treatment, if applied to all cases of apparent infection beyond the appendix, will in the future prove inferior to the results of proper immediate operation in suitable cases, especially as the harm caused by too extensive operations and the limitations of what can, through it, be accomplished are more and more recognized.

VI. Though the results of conservative treatment at Ochsner's hands in Group I and II (89 cases without mortality) could not be improved upon, it is very probable that delay in such cases, if carried out as a routine practice by general practitioners and surgeons, would result in more deaths than would follow immediate operation.

In Group IV, though a mortality of 30% in 33 cases clinically diagnosed as diffuse peritonitis, is less than the average mortality of cases proved, through operation, to have a general peritonitis. The actual existence of a diffuse infection in some of these cases may be questioned. Fowler's results with general irrigation — 33% mortality in 100 cases — is almost as good; and in 46 consecutive cases at the Brooklyn Hospital he had a mortality of only 18¼%. Murphy's 16 consecutive cases without mortality and Hawkes' 11 with 18% show statistics in favor of immediate operation. It must be remembered, however, in comparing the results of operation by such skilled surgeons with conservative treatment, that the latter has this very great advantage, that it can be thoroughly carried out by any good general practitioner, and is applicable to some cases which would be unfavorable for operation. In Group III, 78 cases with abscess and clinical evidence which at first suggested a beginning diffuse infection, the mortality of operation after delay was only 2½%. It is not unlikely that Fowler, for example, would have classed some of the sicker cases in this group as cases of diffuse infection, yet, under conservative treatment, in all of these 78 cases the process became localized. Here again, though the results of Hotchkiss and Blake in 25 cases of advancing infection show no mortality, the average mortality with immediate operation would probably be from 5% to 15%, for in this group, particularly, errors of commission are most liable to occur, infection may be spread by irrigation or bad technic, etc. In spite of Ochsner's results, however, the majority of surgeons fear to trust such cases to the uncertainties of natural resistance, and believe that, with good technic and a selection of cases, more good than harm will result from immediate operation. As in Group IV when conditions for operation are unfavorable or a skilled surgeon cannot be obtained, conservative treatment should be advised.

The influence of Ochsner's teachings, then, combined with the bad results of too radical operations in the past, and greater confidence in natural peritoneal resistance, has resulted in an increasing tendency towards conservatism, though some surgeons still advise immediate operation, in most cases, such operation is less radical than of yore. Though general irrigation is still employed by many surgeons and is particularly valuable in *recently* diffused infections, the tendency on the whole is towards local operation, pelvic drainage and Fowler's position. Year by year, more consideration is given to the general condition of the patient, the stage and progress of the infection, the presence or absence of distention, obesity, adequate assistance, and especially to the experience and skill of the operating surgeon, as factors which, more perhaps than the existence of the appendix peritonitis, should determine the decision for general operation, local operation, or no operation at all (conservative treatment). The belief that appendix peritonitis demands immediate operation, without regard to the skill of the *operator*, etc., is, I think, no less erroneous than the position taken by Ochsner, that all such cases should be treated conservatively and operation delayed. Ochsner's conservative treatment is distinctly safer than poor or bad surgery; may ultimately prove to be safer than good surgery with poor assistance and unfavorable surroundings, etc.; is probably safer than general or even local operation in the "borderland cases," which present indications and contra-indications to operation so evenly balanced that decision is difficult.

Before drawing final conclusions, the question of treatment of appendicitis by delay or operation will be influenced by the following considerations:

(1) More reliance will be placed upon the natural resistance of the peritoneum to infection than has been the custom in the past.

(2) Drainage of the general cavity by any method is only temporary — twenty-four to thirty-six hours. Drainage within the general cavity unfavorably influences natural absorption and hinders peristalsis and favors secondary infection, in the following order: gauze rubber tubes, glass tubes, cigarette wicks. Drainage should therefore be reduced to the minimum, both in amount and duration, which is compatible with avoidance of absorption from the local septic area which is drained. Gauze drainage especially favors the subsequent development of intestinal obstruction.

(3) Distention and vomiting, though both are bad symptoms and are due to a common cause — inhibition of peristalsis through infection, or rough manipulation at operation — and to the presence of fermentable substances in the stomach or intestine, may have also a favorable influence.

For distention, unless extreme, makes the spread of infection more difficult, and diminishes septic absorption. *Vomiting*, unless it is too exhausting or a purposeless retching, may also be beneficial, for by it the toxic contents of the stomach and intestine are evacuated. So long as vomiting is efficient and removes such regurgitation, it should not be checked, though the the same result can often be obtained with greater thoroughness and less fatigue by gastric lavage. The fact that the patient suffers from the toxic substances within as well as outside of the intestine should never be forgotten.

(4) Though movements of the bowels and the discharge of flatus, as a result of cathartics or enemata, are favorable signs, the danger of spreading infection thereby should contra-indicate the use of any cathartic in the early stages of appendicitis when no operation is to be done, before or after operation until infection is circumscribed by adhesions. In the later stages of diffuse infection with marked distention from paralysis, the above objections do not apply. Cathartics are rarely efficient, with the exception of perhaps epsom salts placed in the bowel at operation, as advocated by McCosh. When no peristalsis can be heard by stethoscope, purgatives infrequently provoke it. Enemata may be of value, but care should be taken in the subsequent management of these sick patients not to exhaust them by frequent and meddlesome attempts to procure evacuations, which attempts are often fruitless. The rectal tube and turpentine stupes are of value. The administration of morphia as a routine should be avoided, and when given limited to small doses, repeated as necessary. On the other hand, we are convinced that morphia in large doses has saved some cases which would otherwise have died. During the acute stage of infection, in the great majority of cases water and liquid nourishment should *not* be given by mouth for water is only in small degree absorbed from the stomach and rarely reaches the intestine, owing to the regurgitation of its contents; alcohol which is absorbed in the stomach, may be given if necessary. It is probable that the whole intestinal tube is converted into a secreting, rather than an absorbing, organ, and frequent examinations, not only of black vomitus, but of all vomitus in the early stages of peritonitis, show an almost complete absence of all the digestive ferments. In some cases, where gastric lavage is not possible or is badly borne by the patient, large amounts of hot water may be given to induce vomiting and empty the stomach. With these exceptions we concur in the starvation treatment of Ochsner. We think that with nutritive enemata also, absorption in the presence of a general peritonitis has been overestimated, for a part at least of such enemata is absorbed from the higher bowel where it is normally carried by antiperistalsis. In the existence of a peritonitis, however, this antiperistalsis is absent. We are perforce limited for a brief period, then, to the subcutaneous injection of 5% glucose solution and the free administration of water by rectum or subcutaneously, rarely intravenously. The beneficial effects of large amounts of fluid thus given is very marked.

(5) The advantages of Fowler's, or an exaggerated Fowler's, position after operation is in our opinion very great. With the head of the bed or the patient's body elevated to an angle of 30 or more degrees, the saline solution (if irrigation has been used) or fluid, exudes, cannot accumulate in the loin gutters, but must gravitate towards the pelvis, away from the diaphragmatic region, where absorption is most active, and escape through the pelvic drain. Lateral drainage is unnecessary. Respiration is made easier, especially when the patient is fat or distention is extreme. Unless contra-indicated by cardiac weakness, this posture should be maintained for thirty-six to forty-eight hours; when adhesions have formed and drainage ceases the angle may be decreased to 20°. The only objections to it are the discomfort to some patients of the swathe for support, and the fact that rectal enemata are hard to retain.

(6) Delay before operation — when the patient is exhausted by long travel — for rest, stimulants or saline infusion, is dictated by common sense and need not be a part of Ochsner's treatment.

CONCLUSIONS.

(1) *Purgatives* should never be given in acute appendicitis, *before operation*.

(2) Ochsner's treatment is the best treatment to adopt from the onset of an attack of appendicitis, and to carry out when operation is refused.

(3) Ochsner's treatment is the best treatment to employ in almost all cases of appendicitis, *after operation*.

(4) A careful examination of Ochsner's statistics shows results after delayed operation superior to those obtained by immediate operation.

(5) Should his results be confirmed by a larger experience in the hands of other surgeons, the advantages of delay, with evidence of infection beyond the appendix, contrasted with immediate operation, must be granted.

(6) Until the superiority of conservative treatment has been satisfactorily demonstrated, *immediate operation* will be urged by the majority of surgeons in most cases of acute appendicitis in all stages.

(7) The harm which may result from an exaggeration of the advantages of delay, and the *misapplication* of Ochsner's treatment to early acute appendicitis, is obvious and important.

(8) Owing to the bad results of operation in desperate cases, and the improvement which Ochsner claims may occur under his treatment, the present tendency of surgery is becoming

more and more conservative; *borderland* cases, in which general irrigation, etc., was advised in the past, are now drained locally, or *no* operation is advised. In consequence, operation will no longer be the scapegoat, blamed for a death in reality due to ignorance or delay.

(9) Conservative treatment *may be* advised in certain cases of acute appendicitis, in which the symptoms of rapid septic absorption (peritoneal sepsis) are out of all proportion to the evidences of peritonitis. Such cases are usually caused by a streptococcal retroperitoneal lymphangitis or diffuse intraperitoneal infection. The results of operation are most unsatisfactory.

(10) When there is evidence of recent improvement, or the condition of the patient, obesity, etc., or the surroundings are particularly unfavorable for operation.

(11) Ochsner's treatment *should* be advised in most cases of spreading or diffuse peritonitis when a reasonably good surgeon cannot be obtained. Under such circumstances the results of his teaching have probably accomplished their greatest good.

(12) Irrigation of the general peritoneal cavity is a major operation, not to be undertaken unless the conditions are such that it can be thoroughly performed. It is especially difficult when distention is extreme, and almost impossible unless anesthesia is profound. It is indicated in recently diffused processes, particularly if the previously unirritated peritoneal cavity has been suddenly infected through rupture of an abscess. It may be used in some cases of spreading infections without adhesions, though local operation is probably preferable. General irrigation should not be employed in cases of general peritonitis of several days' duration, with circumscribed collections of pus among the intestines.

(13) After irrigation the danger of increased absorption is best prevented by a tube or cigarette drain to the bottom of the pelvis, or, in women, vaginal drainage, with exaggerated Fowler's position for twenty-four to thirty-six hours.

(14) *Local operation* with pelvic drainage and Fowler's position, without regard to the degree of peritoneal infection, is preferred by many, if not most, surgeons, to general irrigation, and, on the whole, is tending to supplant the latter. The rapidity with which it can be performed makes it the method of choice in very sick cases, in those with marked distention, and particularly in operations outside of hospitals. There are certain cases, however, in which it is inferior to general irrigation.

(15) On an analysis of the statistics of some operators in appendix peritonitis, though the methods of operation (local or general irrigation) and the minor details of technic may vary, the results are often found to be approximately the same. I think the conclusion is, therefore, justified that natural peritoneal resistance is, a most, if not *the most*, important factor in overcoming infection, provided the abscess and the pelvis are drained or the appendix removed in the shortest possible time, with the least amount of trauma and without spreading infection. The question whether the operation should stop at this point or be followed by a general saline irrigation appears to be one of secondary importance; it may be that the one advantage of irrigation is neutralized by its disadvantages.

(16) In the post-operative treatment of these cases too much attention has been given, I think, to the condition of the bowels. When the intestinal walls are paralyzed, and distention is extreme, enterotomy or colotomy may be occasionally beneficial;[7] enemata or the rectal tube may be of use in relieving the large intestine from gas, but as the distention is chiefly due to paralysis of the small intestines, the effect is usually slight. Cathartics by mouth are always almost ineffectual; calomel, with obstipation, may be positively dangerous. Many patients are exhausted by repeated and vain attempts to move the bowels. Ochsner's routine with turpentine stupes to the abdomen is the best treatment for the first forty-eight hours after operation. When intestinal movements cannot be heard, cathartics very rarely induce peristalsis. When the paralysis has passed away and intestinal sounds can again be heard, then cathartics should be given and will be found efficient.

REMARKS ON APPENDICITIS.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

IN discussing the questions appointed for this evening, I can best express my views by giving my own methods of procedure. I am influenced in my daily work by indications for operation which have stood the test of time, and which, therefore, seem to me best. I have adopted technical methods which also have proved satisfactory. A brief description, therefore, of my method of incision, of indications for peritoneal drainage, of indications for or against operation (early or late), of the circumstances under which I delay operation — a brief description of these things will show better than anything else what the results of my experience are. For my methods of operating I do not claim any originality. The methods that I now use might be regarded as the survival of the fittest — a gradual evolution of technic since 1886, through what I have myself done, what I have seen done, and what I have found on the whole to be the best, the most productive of good results.

I will first consider the indications for operation in appendicitis. It has taken me fifteen years or more to adopt fully the principles first laid down by Dr. Worcester as to the indications for operation. The question of immediate operation *versus* delay in appendicitis admits, in my experience, of very little discussion. The earlier a case of appendicitis is operated on, the surer the patient is of recovery. The mortality of abdominal surgery to-day and of general surgery to-day, is the mortality of abdominal emergencies and is the mortality of delay. My practice is now to operate upon all severe cases of appendicitis, almost without exception,

[7] Greenough: BOSTON MEDICAL AND SURGICAL JOURNAL, 1904.

as early as possible after the first symptom. I have become fully convinced that the dangers of delay are greater than the dangers of operation. This is proved, to my mind, by the results. The deaths are almost always owing to lateness of operation, and not to faulty technique. I am sure that the operation for acute appendicitis, as I now perform it, is one which by itself endangers life as little as any abdominal operation can possibly endanger it. This is proved by the small mortality of the operation of simple appendectomy, from which I have now had nearly a thousand consecutive recoveries. And yet, brief and safe as is the operation of removing an appendix in the period of quiescence, this appendectomy in the period of acute infection, no matter how brief it may be or how successful, may, through the anesthesia, add a weight under which the patient, already overburdened by sepsis, succumbs.

Deaths in acute appendicitis are, as a rule, caused by our failure to remove the nidus of infection before it has had a chance to do irreparable damage. In some rare instances death is undoubtedly hastened by unwise intervention. By *unwise intervention* I mean an operation performed when the patient is on the verge of the grave, the least shock, even a brief anesthesia, being sufficient to turn the balance against him.

Although I am convinced that the rule should be operation in every case, that rule admits of certain exceptions. A pneumonia, a severe bronchitis, serious affections of the heart or kidneys or other organs, furnish some of the exceptions to this rule; but the discussion of these exceptions is beyond the scope of the evening's program. So, too, perhaps, are questions of diagnosis. Although it is assumed that the diagnosis of appendicitis is clear, yet I feel obliged to say that many of the disasters in the surgical treatment of appendicitis are caused by inaccuracy of diagnosis — inaccuracy in the data and inaccuracy in the conclusions drawn from these data. I have seen so many mistakes in diagnosis that I cannot but insist upon careful study even of apparently unmistakable forms of appendicular disease. Acute thoracic disease, acute infections of the biliary tract, typhoid fever, acute peritoneal tuberculosis, acute salpingitis, extra-uterine pregnancy, ovarian torsion, retroperitoneal collections of pus from other sources, pyonephrosis, renal calculus, perforations of stomach and intestine, intussusception, mesenteric embolism and thrombosis, Meckel's diverticulum, gonococcal, streptococcal, and pneumococcal peritonitis from sources other than the appendix, undescended testicle and mumps, gonococcal adenitis, — these and doubtless many other conditions have been confounded with appendicitis. Many of these lesions, it is true, demand operation even more urgently than appendicitis, but in many of them surgery adds a useless and grave danger. But, after all, the basis of my decision to adhere to the rule that every acute case should, when the symptoms are increasing in severity, be operated upon, rests upon the splendid results which have followed a reasonable, though not invariable, dependence upon this rule.

The only objection to operative treatment seemed at first to be the apparently unavoidable extension of infection, — the breaking up of adhesions and the spreading of septic fluids throughout the peritoneum, — the churning up, as it were, of pus and small intestines in the depths of the abdomen. That objection exists to-day, and the evils of such a procedure are fully as great as they ever were. The improvement in operative technic has fortunately reduced to a minimum this danger, and has made it far less than the danger of non-operative treatment. The only alternative in cases of this kind was either the operative drainage of abscesses limited by these adhesions, or their spontaneous evacuation through the intestine, through the abdominal wall, or, as too frequently occurred, into the peritoneal cavity itself.

I was soon convinced that, with the present methods of operative technic, the dangers of spreading infection in a localized peritonitis were overestimated. The results of operations in acute cases became more and more satisfactory. Deaths were less frequent, even in cases apparently of the gravest sort. In cases of beginning general peritonitis recoveries were by no means infrequent, provided operation was performed before the intestinal peritoneum itself showed marked changes, and before the infection had destroyed the power of intestinal peristalsis. On the other hand, the fatal results after delayed operations were deplorably frequent. In many cases the patients were with hopefulness watched until operation became clearly imperative, were watched during a period of twenty-four or forty-eight hours, when in far too many cases the only time for successful operation had been allowed to slip away. Patients then had to undergo the same dangers that were feared earlier, and with less power of successfully withstanding them, the same dangers of spreading infection, the same dangers of constitutional absorption. Indeed, in many cases the peritonitis had already spread far beyond the limits within which it was possible successfully to cope with it. I was forced to admit, time and again, that I ought to have operated instead of waiting. One cannot express this bitter regret very often without trying in the future to avoid the occasion for it. I began to operate on these cases earlier; when, fortunately, I was called earlier to them; and I very soon found myself saying, "How glad I am that I did not wait!" Finally, I realized with satisfaction that, though I had many times in my life been sorry that I had operated too late, I could recall hardly an instance in which I had been sorry that I had operated too soon.

There are exceptions to all rules, and there are probably exceptions in my own practice to the rule of operating in all cases of appendicitis. There is the hope that one may be able to tide a man over an acute attack, so that he can be operated on in the interval, when the danger is

less, when the incision is small and the liability to hernia slight. Indeed, we must, under certain circumstances rely wholly upon this hope, slender though it may be. When the general, condition is distinctly unfavorable, as shown by disease of the heart, lungs, or kidneys, we must take chances of delay which we cannot take when the general condition is good. It would be obviously absurd to open the abdomen during an attack of pneumonia so severe as to forbid even the briefest anesthesia. So in cases of cardiac insufficiency; so, too, in the course of sharp attacks of grippe, influenza, and other acute infections of the respiratory tract, one is obliged to rely upon the patient's power of rallying from an undoubted acute appendicitis. I have been through all these distressing complications of appendicitis — pneumonia, bronchitis, grippe, pleurisy and empyema, typhoid fever, and numerous other infections. The patient's chances are always better if we trust to medical and palliative treatment than if we impose upon the already-existing burden the load of anesthesia and laparotomy. And yet, even under these circumstances, we cannot but regret after a fatal peritonitis that we have not tried the operative methods.

In many cases of recurring appendicitis, however, the operation may be performed quite as safely during the attack; for there is no infection outside the appendix. Moreover, the incision may be just as short, and the wound may be closed at once. In sharp attacks of appendicitis, with pain, tenderness, tumor, fever and leucocytosis, there is always perforation, larger or smaller, of the appendix. Immediate operation requires a long incision and drainage. Moreover, the interval operation, unless it is postponed for several months, is quite likely to demand drainage. On the whole, it is desirable to postpone operation until after the subsidence of the attack, but only when the attack is an extremely mild one, and one of a series of similar mild attacks. I have known of many cases of acute appendicitis in which the desire for the interval operation has subjected the patient to the gravest risks. I therefore operate at once, unless the patient is unquestionably convalescing from the acute attack.

The trouble is that even the man who has had an experience of thousands of cases cannot in any case predict with certainty the result. I will say, at least, that there is one man who, after such an experience, cannot predict with certainty the prognosis in any acute case, no matter how mild the symptoms may be. I have recently found myself delaying in cases in which operation proved to be of the gravest sort, deceived by the apparent mildness of the attack as illustrated by the triviality of pain and of local and constitutional signs. I have watched during a whole night at the bedside of a patient who presented symptoms of the mildest sort, hoping — indeed, confidently expecting — rapid subsidence of the few signs that did exist, only to find in the morning, at an operation made imperative by my evident inability to determine the existing pathological condition of the appendix, a large, totally gangrenous appendix, distended almost to the point of bursting. Now if a man of large experience and average intelligence can thus fail to interpret the symptoms of so serious a form of appendicitis, what is to be said when men of the same intelligence and of practically no experience fail to appreciate the gravity of a case? Those of us who are brought in contact with large numbers of acute abdominal emergencies learn to interpret histories and physical signs with considerable accuracy. Indeed, in almost all cases of acute appendicitis we are able to tell the condition of the appendix, the probable course of the disease, and whether or not operation is necessary. But if we can, by this large experience, come to a correct conclusion for ourselves, is it reasonable to say that we can transmit to others the same power of generally correct observation? He must, indeed, be an inexperienced man who cannot, in a large percentage of cases, make true observations and draw correct conclusions from these observations. With increasing experience he will find himself right in an increasing proportion of cases; and yet he will not be able to avoid a deplorable number of mistakes, especially when he attempts, from any combination of circumstances, to predict the probable course of events. The trouble is that the man of small experience must rely upon his reading for guidance; and he, relying for guidance upon rules laid down by men of larger experience, will make many mistakes. His mistakes, however, will be, not in making incorrect deductions from facts, but in incorrect observation of the facts themselves. He will find his observations of appendicitis — as I have occasionally found mine — woefully mistaken. It is in this way that teachers of surgery may do harm. The beginner, seeing the ease with which appendicitis is diagnosticated, the rapidity and efficiency with which the appendix is removed, the almost universal success of the operation, or, in case of palliation, the almost invariable success of palliation, is liable to errors in three directions: he will err in his interpretation of symptoms; in the prognosis based upon these symptoms; and in the performance of his operation. Instead of teaching that the diagnosis of appendicitis is always easy, we should teach that it may be extremely difficult; instead of saying that the prognosis may be clearly made, we should say that it can never be positively made; and that the operation, though often easy, is more often difficult. Illustrations of these facts are seen in the experience of every consulting surgeon. I have no doubt that my efforts in the past to lay down rules for guidance in acute appendicitis have done a certain amount of harm — perhaps more harm than good; for a man of small experience, relying upon his incorrect interpretation of symptoms and an incorrect prognosis, would necessarily fail to apply the proper remedy. Even to-day shall we advise inexperienced men to follow such a rule as I have laid down for my own guidance? Assuming that the disease is correctly diagnosti-

cated, will not the patient's chance be better on the whole if, for such a man, the rule of medical treatment in all cases be followed rather than the rule of surgical treatment in all cases? I am inclined to think that under these conditions the greatest good to the greatest number would be insured by a policy of universal medical treatment rather than by a policy of universal operation; for would not a slow, clumsy and inefficient operation be of greater injury to a patient than the possible complications of the case left to follow its natural course? It seems to me that the rule which prevails in modern warfare in connection with gunshot wounds of the abdomen would be a good rule to follow in appendicitis: namely, that on the field of battle penetrating wounds of the abdomen do better left to themselves than operated upon under the adverse conditions of active warfare and the field hospital. On the other hand, are there not grave objections to the delay made necessary by sending to a distance for surgeons of experience? This delay has undoubtedly proved fatal in not a few cases.

I once traveled into the Maine woods to operate in a case of appendicitis. The progress of the disease had been extremely rapid, and the general peritonitis was far advanced when I arrived. The operation was of no avail; the patient died within a few hours. Had there been in that community a surgeon of even moderate experience, the boy's life might have been saved.

In the course of the last fifteen years I have seen the development of surgeons in comparatively small communities, and the development of the suburban hospital. The remedy for the evils of indiscriminate operating by inexperienced men lies in the education in each community of one or two surgeons. In the smaller cities and towns there is enough surgery to give to one or two men a large experience; and these men should have in their hands all the major surgery. In that way alone can the evil results of indiscriminate operating be provided against; and in that way alone can the disasters following delay in sending to a distance be prevented. As it is, almost every practitioner in the less populous communities is ambitious to do surgery. As long as this ambition is realized, experience sufficient to enable men to become good surgeons will be lacking, and the same deplorable results in the emergencies of abdominal surgery will occur. Not that surgeons even of the largest experience can expect a low mortality in these cases, but the greater the surgeon's experience, the less high will that mortality be.

Acute appendicitis of the severe type, then, presents no worthy indications for delay, except as embodied in the foregoing remarks. The rule should be to operate. In my practice I follow this rule.

Can we wait for localization in cases in which the general peritoneal cavity is involved? To the solution of this question I can add nothing except to say that, in my opinion, we cannot thus wait. There is but one thing to do when the general peritoneal cavity is involved by an infection, and that is to operate as speedily as possible, to find the cause of the infection, and to remove it.

This rule admits of an exception in cases of doubtful infections in which complications in other viscera, or peculiarities of the patient's general condition, make the briefest operative intervention out of the question. In such cases there is always the hope that the peritoneum may be able to take care of itself, and in this hope lies the patient's only chance. To rely upon the possibilities of localization in a strong and otherwise healthy patient, is to choose deliberately the more dangerous course. To choose this more dangerous course, to avoid the greater evils of complicating conditions, is, however, but common sense.

A word now as to the experience on which my remarks are based. In the beginning my cases were all acute ones, and usually of several days' duration. Operations were the last, not the first, resort. Drainage of abscesses was the only operation that was almost sure to be successful. Practically all cases in which the appendix was isolated and removed proved fatal. As appendicitis has become generally recognized as a surgical disease, it has rightly been classed as an emergency; and both in the community and at the hospital the operation is performed as soon as possible. At the Massachusetts General Hospital the patient on admission is prepared for operation, and the surgeon sent for. The result is that the proportion of fatalities to the total number of operations for appendicitis has been greatly diminished.

In the past year, out of 112 operations for appendicitis, I had three deaths. Two of these were in private, and one was at the Massachusetts General Hospital. Of the total number, a large majority were interval operations, in which I have had as yet no deaths, although the total number is nearly a thousand. My total mortality for the past year, between five and six hundred operations of all kinds, was 17. The other 14 deaths were mostly abdominal emergencies of one kind or another, for which the same old cause, delay, was chiefly responsible.

Comparing the mortality of appendicitis to-day with that of ten years ago, as illustrated in my practice, I see an extraordinary improvement in the results. This improvement relates wholly to acute cases, and is dependent upon improvement in technic and early operations. But the improvement in technic would have but little effect were it not for the timeliness of intervention. I am influenced in my present practice, therefore, by my personal experience, as well as by what I have observed in the work of my colleagues at the Massachusetts General Hospital. Taking my own cases and the cases at the Massachusetts General Hospital since Dr. Fitz's splendid work called attention to the surgical aspects of the disease and gave it its name, I have had every opportunity to see the formation and the gradual changing of opinions — opinions based first upon a very few cases, and now upon thousands. I have watched the treatment of appendicitis from

the time when the physician at the hospital told his house officer to send for the surgeon only when the patient was in collapse, up to the present time when the patient on admission is prepared immediately for operation, the surgeon is sent for, even in the middle of the night, and the appendix is at once removed. I have seen the practice of surgery in appendicitis from the time when every case in which the appendix was perforated was fatal, to the time when every case in which the appendix is perforated and gangrenous, if operated upon within a reasonable time, is successful.

During these years the one observation that has surpassed all others in importance has been that early operations for appendicitis have been almost invariably successful. Late operations, though owing to improved technic not as unsuccessful as they formerly were, still have a deplorable mortality. General peritonitis, unless controlled in the very beginning of the infection, is as hopeless as it ever has been.

Having thus been forced by circumstances to the belief which I have just expressed, I will speak of some of the technical methods by which the great success of modern operations is, in my opinion, achieved.

As to the incision, there are two: One for acute appendicitis and one for chronic. Under *chronic* I mean to include every case not acute, whether the appendix be inflamed externally or internally, whether it be simply the subject of some constriction of the lumen, of some faulty position affecting its drainage, or of some peculiarity in shape and nutrition.

For chronic appendicitis the best incision is the muscle-splitting one of McBurney. The only variation from that incision which I make is when, in women, I think there may be trouble with the pelvic organs. To extend the McBurney incision makes a ragged and unsatisfactory one. When, therefore, I think I am likely to need a long incision I always select the outer border of the rectus, being careful not to injure the terminal branches of the motor nerves. In acute appendicitis I never use the McBurney incision if there is any reason to think that drainage will be required. Not that satisfactory drainage may not be established through the McBurney incision if the infection is moderate; but it seems to me extremely desirable to have a free opening in order to permit the satisfactory use of gauze and a clear view of every step of the operation.

In acute appendicitis I make an incision of sufficient length through the outer border of the rectus, with especial reference to the tumor or other signs of a localized or localizing peritonitis. It is of the utmost importance to carry out Dr. Harrington's method of opening the abdominal cavity well within the area of infection. The moment the peritoneum is nicked, I can tell whether there is a general infection or not. If the intestines are unchanged and if little or no fluid is present, there is no general infection. If, when the peritoneum is nicked, turbid serum spurts out under pressure, there is, almost without a doubt, a beginning general infection. One cannot always be sure of this, however. If the fluid under pressure is turbid and has a bad odor, you surely have an infection of greater or less extent. The next step consists in cutting through the peritoneum the full length of the external cut. Then the abdominal walls are lifted, so that great masses of gauze can be used to protect the intestines in all directions, radiating from the nidus of infection — the appendix.

Whenever possible I use the Trendelenburg table, giving a slight inclination downward of the head and trunk. By the exercise of care, the gauze masses can be so placed during the manipulations of taking out the appendix that they will become heavy with exudate. Gauze can be used in sufficient quantities to absorb all the fluid so that when it is removed the peritoneal cavity will be dry. Furthermore, the operator can see the exact situation of the appendix — can see what its attachments are and how far along the suppuration is; and he will perform intelligently an operation which in former days resembled nothing so much as the stirring together of small intestines, gangrenous appendix, and putrid exudations — an operation which it seems to me now a wonder that anybody survived.

When the appendix has been isolated and tied, before the soggy masses of gauze are removed, the permanent wicks are placed — usually one protected cigarette drain down to the bottom of the pelvis and an unprotected wick to the base of the appendix. The gauze masses are carefully withdrawn from all sides, the intestines fall back into their natural position. In the great majority of cases the peritoneum will take care of whatever infection is left. No wiping and no irrigation are necessary. For twenty-four or forty-eight hours the wicks pour into the dressing enormous amounts of bloody serum. Then the track of the wick becomes isolated, and no further drainage from the general peritoneal cavity takes place. I remove the wicks at the end of three or four days, replacing them by a shorter one. At the end of a week or ten days all drains are removed. Backing up of pus or secondary abscess seldom occurs. I never use drainage tubes for fear of pressure upon the intestine and fecal fistula.

This is a brief description of the methods to which I have gradually been brought during the last fifteen years.

In chronic appendicitis I use the McBurney incision unless there is a strong probability that removal of a tube or an ovary will be necessary. It has always seemed to me extremely desirable to do as little damage as possible to the abdominal wall, especially in the young, on account of the great liability to hernia. We must remember that operations for appendicitis have not been performed long enough to enable us to tell just what the liability to hernia is. I do not feel that a patient is ever safe from hernia when the incision has been made at right angles to the internal oblique and transversalis muscles — no matter how firm the scar may in the beginning

seem. In a great many cases the incision may be absurdly small. With the patient in the Trendelenburg position, an incision in a thin abdominal wall need not be longer than an inch. After healing I have found repeatedly that the scar could be covered by the tip of my little finger, and almost always by the thumb. I have removed many an appendix through an opening in the abdominal wall so small that I could not get my forefinger into it. There is not the least objection to a short incision if one is ready to enlarge that incision whenever there is any difficulty in finding the appendix. It is obviously unnecessary to have a large incision when between the narrow retractors one can see and grasp the appendix with forceps. Nothing can be easier than the manipulations of the operation when the appendix can be seized and drawn out with its mesentery and with enough of the cecum to permit proper treatment of the pedicle. There is not only less danger of hernia with these small incisions, but there is less danger of infection. I cannot but regard that operation as defective which permits the escape from the abdomen of intestinal coils. The larger the wound, the greater the exposure of the intestinal coils; the greater the exposure of the intestinal coils, the greater the danger of infection and the greater the liability to hernia. The whole must be greater than one of its parts. It cannot be that the danger of hernia is as great with a small incision as with a large incision; or that the danger of infection is as great after small exposure of the peritoneum as after large exposure. Furthermore, the danger of adhesion-formation must be less when the incision is small than when it is large. There is everything to commend the small incision in appendicitis, and there is nothing to condemn it. I am surprised to see every day the long incisions made in chronic appendicitis. Nothing is easier in case of difficulty than to enlarge the incision — to make, in the end, an incision large which in the beginning was small, but it is obviously impossible to make an incision small in the end which was in the beginning large.

Dr. Murphy's account of his experiments on the dog have interested me very much and go to prove the deductions made from operations on human beings — that the peritoneal cavity is one of the most difficult places to drain, owing to the great rapidity with which peritoneal adhesions form. I have tried a great variety of methods in cases of general peritonitis. I have never washed out the abdominal cavity in the localized forms unless there has been reason to suspect a spreading peritonitis, but I have used, as one step in the operation just described, wiping with gauze wrung out in dilute corrosive sublimate. I have filled the area isolated by the big gauzes with peroxide of hydrogen, without seeing any beneficial result. I have tried irrigation in all forms; my emergency bag always contained canulæ of various shapes and sizes for washing out the peritoneal cavity. I have opened in the middle, on both sides, and in both flanks, as well as in front. I became fully convinced of the uselessness of these incisions, as well as of the uselessness of irrigation and of enterostomies, and the worse than uselessness of evisceration and the wiping off of every speck of fibrin. I believe that all that human art can do in general peritonitis is to remove as large an amount of infecting fluid as possible, with the least shock possible, trusting to the absorptive power of the peritoneum and the strength of the patient to do the rest.

I have been through, also, the performance of enterostomies for the relief of peritonitis with paralyzed intestinal coils. This is never satisfactory, for when the intestine is distended and paralyzed it is impossible to empty any but the nearest coil, and not enough is gained in the relief of distention to justify the disadvantages of the operation. In desperate cases I have opened up the intestine secondarily, always without benefit.

I am very glad to be able to address so large an audience on this subject. To many it may have seemed that there is nothing more to be said of appendicitis; that the disease and its treatment are no longer of any special interest. For myself, it seems to me now — and it always has seemed to me — by far the most important of surgical diseases to which those in the prime of life and strength are subject; a disease which, from the onset of pain, must be looked upon as a possible if not a probable source of death. It is a disease of which we know a good deal, but about which much remains to be learned.

However much we may have learned in predicting a favorable issue under palliative treatment, I for one cannot but feel that all such predictions are hazardous. I have learned to dread the future in acute appendicitis, even when that future has been confidently predicted by the most experienced. No call for my service fills me with greater apprehension than the call to the young and strong on the second or third day after an attack of abdominal pain — in which everything has tended to show that the attack would be mild and brief, but in which increasing pain, tenderness, rigidity and vomiting have already shown the folly of prediction.

SOME OBSERVATIONS ON APPENDICITIS.

BY R. H. FITZ, M.D., BOSTON.

In the list of subjects offered for discussion, that which especially concerns the physician is the question of immediate operation *versus* delay. Before expressing an opinion on this important matter it seems fitting to refer briefly to the development of the surgical treatment of appendicitis, more especially that the contributions of some of the surgeons in this vicinity may be brought to mind.

In the progress of our understanding of this disease, exact knowledge at first was based exclusively on the evidence controlled by post-mortem examinations. The unquestionable cases of appendicitis were those in which it was known that gangrene or perforation had taken place. It then was made probable that the

so-called perityphlitic abscesses were almost invariably of appendicular origin. The indications for the treatment of perforating appendicitis thus became sharply defined. Urgent symptoms demanded immediate exposure of the perforated appendix, after recovery from the shock, and its treatment according to surgical principles.

If after the first twenty-four hours from the onset of the severe pain, the peritonitis was evidently spreading and the condition of the patient was grave, the question was entertained of an immediate operation for exposing the appendix and determining its condition with reference to its removal.

If delay seemed warranted, the resulting abscess was to be incised as soon as it became evident. This was usually on the third day after the appearance of the characteristic symptoms of the disease. At this period it had to be learned by experience what were sufficiently urgent symptoms or what was a grave enough condition to demand immediate exposure of the diseased appendix.

It was known that the drainage of abscesses in the region of the cecum was followed often by recovery, and it was learned in the course of time that with apparently similar symptoms patients might recover with or without the formation of an abscess, or might die from the effects of perforation or gangrene.

At first, therefore, surgeons preferred to wait, with the hope of finding an abscess which might be drained successfully from behind the peritoneum, separated for this purpose from the wall of the right iliac fossa.

The clinical diagnosis of appendicitis was first definitely made in January, 1886, upon a patient of Dr. Charles P. Putnam of Boston. The attack was mild, the third within a year, and surgical treatment was considered unnecessary. Dr. Putnam informs me that this patient has had no recurrence since that time. So far as I am aware, the first operation upon a case diagnosticated as appendicitis was performed by Dr. J. C. Warren upon a patient of Dr. J. B. Ayer.[1] Death occurred, and the supposed appendicular abscess proved to be of hepatic origin. Three days later Dr. E. H. Bradford operated upon a patient of Dr. J. G. Blake, the diagnosis of appendicitis having been made. A fibrino-serous exudation around the cecum was incised and the patient recovered. Although the appendix was not exposed, this may fairly be considered the first operation upon a patient with the diagnosis of appendicitis in whom, with all probability, the appendix was the source of the disease.

In January, 1886, several months before the subject of appendicitis had become clearly understood, Dr. John Homans[2] made an important contribution to the surgical treatment of deep-seated abdominal abscesses. He showed that the normal peritoneal cavity could safely be crossed in the search for encapsulated pus in the right iliac fossa, the presence of which was suspected from rational signs in the absence of an appreciable tumor. The adherent intestines were separated and the abscess drained. Dr. Homans gave especial credit to Dr. J. S. Greene of Dorchester whose patient was thus operated upon.

The perforated appendix had been removed unsuccessfully by Kronlein in 1884[3] from a patient supposed to have acute obstruction or a perforated appendix. Dr. R. J. Hall,[4] in May, 1886, removed the perforated appendix during an operation for strangulated hernia, and the patient recovered. In the same year Dr. J. D. Bryant[5] removed the perforated appendix in a fatal case of peritonitis, which proved to be due to the above cause. It remained, however, for Dr. R. F. Weir, April 21, 1887, to be the first in a recognized case of appendicitis to cross the normal peritoneal cavity, and after opening the appendicular abscess, to remove the diseased appendix, although the patient died.[6] A few days later, April 25, 1887, Dr. F. J. Morton[7] removed successfully the perforated appendix which lay at the bottom of the abscess. Thus it was demonstrated that the normal peritoneal cavity could successfully be explored in the search for a suspected perityphlitic abscess; that the latter could be drained through the normal peritoneal cavity and the patient survive; finally, that at the same time the perforated appendix could be removed and the patient live.

The conditions were now ripe for the removal of the diseased appendix without waiting for the evidence of an abscess by advancing the date of the operation.

So far as I am aware from any published statement, Dr. E. R. Cutler of Waltham was the pioneer in this movement. His successful operation was performed Dec. 21, 1887, forty-eight hours after the onset of the symptoms.[8] The credit of the first publication of a successful case of removal of the appendix forty-eight hours after the initial symptoms belongs to the late Dr. H. B. Sands of New York.[9] He operated Dec. 30, 1887, and his communication was a notable contribution to the practical side of the question. Dr. Homans, May 27, 1889, was the first to operate within twenty-four hours of the beginning of the disease in a case in which I was the consultant. He considered it inadvisable to directly examine the appendix and the peritoneal cavity was drained. The patient died on the sixth day from general peritonitis, and the appendix was found perforated.

Nevertheless, the chief credit in promoting the early removal of the diseased appendix is due to Dr. Charles McBurney of New York, whose communications[10] attracted widespread

[1] BOSTON MEDICAL AND SURGICAL JOURNAL, 1887, cxvi, 376.
[2] BOSTON MEDICAL AND SURGICAL JOURNAL, 1886, cxiv, 388.
[3] Arch. f. Klin. Chir., 1886, xxxiii, 514.
[4] N. Y. Med. J., 1886, xliii, 662.
[5] N. Y. Med. Rec., 1887, xxxi, 22.
[6] N. Y. Med. Rec., 1887, xxx, 655.
[7] J. Amer. Med. Assoc., 1888, x, 733.
[8] BOSTON MEDICAL AND SURGICAL JOURNAL, 1889, cxx, 555.
[9] N. Y. Med. Journ., xlvii, 197.
[10] N. Y. Med. Journ., 1889, l, 676. BOSTON MEDICAL AND SURGICAL JOURNAL, 1890, cxxiii, 566, 587. Trans. Med. Soc. State of New York, 1891, 208.

attention. His example was speedily followed in various parts of the world, but with an increasing tendency on the part of the surgeon to operate in all cases of acute appendicitis as soon as the diagnosis was made. One of the earliest most energetic and persistent advocates of this doctrine was Dr. Alfred Worcester of Waltham.[11]

In the meantime, however, a most important contribution to the surgery of appendicitis had been made by Mr. Treves of London.[12] He advocated the removal of the diseased appendix during the quiescent period following an attack. This operation was performed at first in the treatment of relapsing appendicitis, but later it was recommended after recovery from the primary attack.

During the past fifteen years the exclusive, immediate surgical treatment of acute appendicitis has been so earnestly advocated and pursued in many localities that the experience of the individual surgeon has been measured by thousands of operations. Many physicians and surgeons have no personal knowledge of the course of a mild attack of appendicitis, so ready are the former to be relieved of their responsibility, and the latter to secure for the patient a minimum of risk by an operation at the earliest possible moment. Yet it is recognized that patients with acute appendicitis can recover without an operation, and that recurrences are inconstant. There is no lack of anatomical evidence on the former point, and the collective inquiry of Sahli shows that out of nearly seven thousand cases of appendicitis treated medically, nine tenths can recover without an operation. The absolute frequency of recurrences is unknown, but from evidence already obtained it is estimated as high as fifty per cent. Of one thousand patients operated upon by Ochsner, more than one half had chronic appendicitis or were operated upon during a quiescent period.

Even if the percentage of cases ending in spontaneous recovery were considerably less and recurrent attacks more frequent, it is evident that the question of immediate operation *versus* delay is one of extreme importance to the family physician who usually sees the patient with appendicitis before the aid of the surgeon is sought. In accordance with his interpretation of the term "immediate," an unnecessary operation may be performed in one half of the cases, perhaps to the greater or less disadvantage of the patient, since Ochsner records a mortality of nearly two per cent. The remote issue also is uncertain, for adhesions or hernia may follow. On the other hand, a necessary operation may be unduly delayed with a corresponding risk to the patient's welfare or life.

It is desirable, therefore, to consider what is meant by the term "immediate" operation. It is conceivable that a different meaning may be attached to it by the surgeon and by the physician. The former is accustomed to see the patient at a time when the symptoms are sufficiently pronounced to demand operation at once. It may be that the progress of the disease has advanced so far that any operation seems almost hopeless, whereas an immediate operation at any earlier period would have been hopeful. Immediate operation to him is early, timely, as soon as the diagnosis is made, therefore at a stage when only incipient gangrene or beginning ulceration is the worst feature to be encountered. Such operations often are stated to be performed within a few hours of the onset of the disease, although it is highly probable that the production of the stated lesions demands a considerably longer period than a few hours.

The physician, on the contrary, is called upon to see the patient in consequence of abdominal pain. This may result from various causes, one of which is the onset of an attack of acute appendicitis, which at such a visit should always be in mind. There may be neither elevated temperature nor constitutional disturbance, and localized tenderness be slight or absent. Even if the last condition is present, the physician knows that there are instances of appendicitis so mild that no anxiety is aroused, and that recovery or a change for the better may take place within twenty-four hours. The patient requires watching merely, and at this stage should be given a chance of recovery without an immediate operation. If, however, the pain persists, the tenderness increases with a sharp limitation to the region of the appendix, with or without a tense, guarding muscle, and the temperature rises, longer delay is undesirable. An immediate operation then is called for, and may be performed by an experienced surgeon with but little risk. But if the physician first sees the patient when the latter is suddenly attacked with intense abdominal pain and there is exquisite tenderness in the region of the appendix, it is probable that perforation or gangrene is threatening or has taken place, and an immediate operation is demanded. In chronic appendicitis, on the contrary, delay is warranted till a convenient period is reached. Recurrent appendicitis should be regarded as a primary attack, and delay be encouraged, if possible, until a well-established, quiescent period is reached, when the appendix may be removed at a time when the mortality, according to Ochsner, is only one half of one per cent.

The question of immediate operation *versus* delay may be answered as follows:

The physician is justified in delay until the conditions call for an immediate operation. These may be present at his first visit or may not appear till a later period. If after twenty-four hours there is no improvement, and especially if the fever increases, an immediate operation is preferable to further delay. The surgeon may be expected to perform an immediate operation upon his arrival under the above circumstances.

[11] Boston Medical and Surgical Journal, 1890, cxxii, 97.
[12] Lancet, 1888, i, 322.

CHOICE OF METHOD OF OPENING THE ABDOMEN IN APPENDICITIS.

BY FRANCIS B. HARRINGTON, M.D., BOSTON.

THE appendix has been reached by many incisions: from the middle line, from the rectus muscle, from the semilunar line, from the kidney region, from below the appendix, from above the appendix and from over the appendix.

There are certain points which we should consider in approaching the appendix. First, the safety of the patient as regards life both at time of operation and during the period of convalescence. Under this heading would come the question of ease of removal both of the appendix and of septic and purulent collections and the best position for placing the drainage material.

In inserting drainage material it is desirable to keep to the outside of the coils of intestines, in other words, not to enter between them, but if possible to have the parietal peritoneum form one wall of the drainage canal. If the opening in the abdominal wall be toward the outside, *i. e.*, at McBurney's point, we can drain the right iliac region, the pelvis and the right lumbar region without penetrating intestinal coils. If there are separate collections in other regions of the abdomen it is better to make other openings with this point in view.

In regard to the removal of purulent and septic collections, I do not believe in flushing out the abdomen except in the most pronounced and general infection, and I am doubtful of its utility even here. The danger of washing septic material into unaffected areas is great, and I question if toxins diluted with saline solutions are not more readily absorbed. I depend almost entirely on sponging out and the drainage which follows in the first few hours.

In the second place, we must consider the condition of the abdominal wall subsequent to operation in reference to hernia and to the muscular strength of the wall, and finally the appearance of the scar. Different conditions of appendicitis call for different incisions. When the appendix is not inflamed and when the abdominal wound can be tightly closed, it makes comparatively little difference what incision is used, provided the peritoneum, muscles and fascia are at once approximated in layers and there is no subsequent sepsis. It can be stated as a general truth that the smaller the incision, the smaller the amount of overhauling of viscera and the smaller the amount of drainage material used compatible with safety, the better the result.

It is my belief that hernia and abdominal bulging do not result so much from section of the nerves and from muscle paralysis as from cross-cut muscle fibers and aponeuroses, which are pulled apart by muscular contraction, or separated by drainage tubes and wicks, which on removal leave a gap to be filled by granulation tissue. It is a good rule never to cross-cut a muscle or aponeurosis if it can be avoided. The nearer the incision to the middle line and the lower in the abdominal wall, the greater the tendency to hernia.

Drainage wicks and tubes should be lessened in size and removed entirely as soon as safety will permit. If the muscle-splitting incision be used in septic cases, moderate muscular movements should be encouraged as soon as the drainage is removed, for suitable muscular movements tend to approximate the split muscular and tendinous fibers.

The attitude of the surgeon toward the treatment of acute inflammatory conditions of the abdominal cavity resulting from appendicitis will modify his abdominal incision. The surgeon who believes in heroic measures in all cases which have advanced beyond purely local inflammation, in flooding the abdominal cavity and scouring the intestines, will need more room than the one who is content with less vigorous measures.

McBurney's gridiron incision is ideal for a large majority of the "interval operations." The scar may not measure more than an inch in length, though I doubt the wisdom of attempting to make extremely small openings.

This incision will be sufficient and satisfactory also in a large number of early acute cases. I have used it for the past seven years in a great many cases of acute appendicitis with drainage. The resulting condition of the abdominal wall has been excellent, and superior to that which follows the cross-cutting of the muscles and tendons when drainage is used. If more room is needed, it is possible to enlarge the usual McBurney incision so that an opening extending from the crest of the ilium nearly to the linea alba can be obtained. Through this incision the larger part of the cases of acute appendicitis can be satisfactorily treated. This opening I have called an "extended McBurney incision." There is no cross-cutting of muscular or tendinous fibers. The contraction of the abdominal muscles tends to close the wound rather than to open it. These incisions I have used since 1897 and in a large majority of my cases. In the wounds with drainage, hernia and bulging are only exceptional.

Six years ago, I found in an examination of 236 patients operated on by various suregons, including some of my own, that there was a marked bulging of the abdominal wall in 45 per cent. and true hernias in 16 per cent. of the drained cases.

The cases dated from the earliest period of operative interference in appendicitis, when it was the custom to make large incisions, to cross-cut muscles and tendons and to use large amounts of drainage material.

In 1899 I described the "Extended McBurney Incision" in a paper on "Hernia following Operation for Appendicitis,"[1] as follows:

"Make an incision in the skin four to five inches long in a line with the fibers of the external rectus muscles, at such a distance from the anterior superior spine of the ilium as is desirable. Separate the muscle and its tendon without cutting for a like distance, then insert retractors

[1] BOSTON MEDICAL AND SURGICAL JOURNAL, Aug. 3, 1899. Transactions of the American Surgical Association, 1899.

one and one-half inches broad at either end. The middle of the incision should correspond to the usual position of the base of the appendix. At this point the internal oblique and transversalis muscles run nearly parallel and horizontal. These muscles should be separated, without cutting down to the transversalis fascia, and from the ilium to the linea semilunaris. If this does not give sufficient room, the sheath of the rectus may be separated in front and behind the muscle in a line continuous with the separation of the internal oblique and transversalis muscle.

"The sheath of the rectus muscle is formed by the aponeuroses of the internal oblique and transversalis muscles. The direction of the fibers

them to their normal tone. For a month after healing, a simple supporting swathe may be used, but the prolonged use of the abdominal belts or trusses seems to me undesirable."

The aponeurosis of the external oblique can be stripped from that of the internal oblique usually half way across the rectus sheath and often to the middle line. The fibers of the external oblique cross the fibers of the rectus sheath at an acute angle. Thus we have, by the splitting incision over the rectus, a gridiron arrangement of three layers. The nerves can be drawn to one side and the deep epigastric artery can be drawn over with the rectus muscle. Through the incision the hand can be inserted into the pelvis and the right tube and ovary can be examined and re-

Fig. 1. — Extended McBurney Incision.

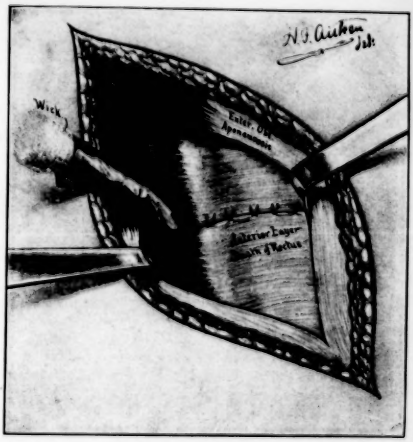

Fig. 2. — Rectal sheath closed and drainage inserted.

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"All drainage should be removed as soon as safety will permit. When the wound has healed and the stitches have been removed, the patient should be taught to make gradual and careful use of the abdominal muscles in order to restore

rity of the abdominal wall, in which the whole thought must be given to the saving of the patient's life. Such cases are rare, however.

SUBPHRENIC ABSCESS AS A COMPLICATION OF APPENDICITIS.

BY HERBERT L. BURRELL, M.D., BOSTON.

Your secretary, Dr. Codman, has asked me to speak of subphrenic abscesses caused by ap-

[2] xiii Congrès International de Médecine. Paris, 1900, Section de Chirurgie Générale. Comptes Rendus, p. 801.

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Drainage wicks and tubes should be lessened in size and removed entirely as soon as safety will permit. If the muscle-splitting incision be used in septic cases, moderate muscular movements should be encouraged as soon as the drainage is removed, for suitable muscular movements tend to approximate the split muscular and tendinous fibers.

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"The sheath of the rectus muscle is formed by the aponeuroses of the internal oblique and transversalis muscles. The direction of the fibers of the sheath is horizontal, being at right angles to the line of muscular fibres of the rectus. At the semilunaris line it will be necessary to use the knife or scissors, since at this point the union of the various aponeuroses is very compact. The rectus muscle can then be drawn toward the linea alba and considerable room obtained.

"Care should be taken not to cut the deep epigastric artery which at this point lies inside the rectus sheath in the posterior part of the muscle. If necessary, it may be tied. Two retractors, each about two inches broad, should be inserted, one at either end of the deep incision; the retractors which have been used for the external oblique can now be dispensed with."

"To approach the appendix in cases of acute inflammation, with or without suppuration, I make it a point to enter the general abdominal cavity beyond the region of the appendicular mass. The inflammatory mass is not attacked until its extent and outline have been determined and it has been isolated by a wall of gauze. This method gives good results. Having cut through the transversalis fascia and the peritoneum in a line with the deep incision, we have an opening into the abdominal cavity two inches wide and from two to four or more inches long. This is sufficient for nearly all operations on the appendix. No portion of the tissues essential to the integrity of the abdominal wall has been cut through, except for a slight incision at the semilunar line."

"The opening of the rectal sheath is frequently found to be unnecessary. When the retractors are removed, the muscular layers come together and even without sutures present a firm obstruction to the protrusion of the abdominal contents. If the rectus sheath has been opened it should be closed with sutures." [In septic cases these sutures should be of chromic catgut.] "A suture should be used to unite the edges of the linea semilunaris. Other sutures should be used as far as drainage will permit. If drainage can be avoided, then the separated layers of muscles should be closed carefully.

"All drainage should be removed as soon as safety will permit. When the wound has healed and the stitches have been removed, the patient should be taught to make gradual and careful use of the abdominal muscles in order to restore them to their normal tone. For a month after healing, a simple supporting swathe may be used, but the prolonged use of the abdominal belts or trusses seems to me undesirable."

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In nearly every case of appendicitis I make it a rule to enter the free abdominal cavity beyond the appendix and the inflammatory mass in order to examine for secondary abscesses and to determine the condition of the rest of the abdomen.

If the appendix mass extend beyond the semilunar line, it is better to open the abdomen by a vertical incision through the rectus sheath and separate the rectus muscle or retract it. If it extend to the middle line or beyond, I open in the middle line.

Weir of New York described "Another Modification of the Operation for Acute or Chronic Appendicitis with Preservation of the Integrity of the Abdominal Wall,"[2] which he had used for a number of years and with marked success. The principle is similar to that which I have described above.

The rectus incision for the "interval" operation is a good one, but has the objection that if drainage is found to be necessary, the oblique and transversalis muscles when they contract tend to spread the opening in the rectus muscle and sheath. This incision has the advantage of easy extension up and down the abdomen.

There is sometimes a condition in which no thought can be given to the subsequent integrity of the abdominal wall, in which the whole thought must be given to the saving of the patient's life. Such cases are rare, however.

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YOUR secretary, Dr. Codman, has asked me to speak of subphrenic abscesses caused by ap-

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pendicitis. A subphrenic abscess may be defined as one that lies in contiguity with the diaphragm. Its anatomical limitations are varied. It may lie in the right or the left hypochondriac region; it may be entirely below the diaphragm; it may perforate the diaphragm, or it may be connected with a pyothorax. Its inferior limitations depend upon the origin of the infection, the size of the abscess, and the barriers and adhesions that prevent its extension. The lateral limitations of the abscess are largely controlled by the falsiform ligament which may exceptionally be perforated.

The most frequent cause of subphrenic abscess is infection, a perforated gastric ulcer or gall bladder. Next to this in frequency comes extension from a pyo-pneumothorax, either by extension through the lymphatics or by perforation. What concerns us, however, is the frequency of this abscess as a complication of appendicitis. Christian and Lehr, in 1902, published in the Medical and Surgical Reports of the Boston City Hospital, volume 13, a paper on "Subphrenic Abscesses as a Complication of Appendicitis." In a series of 4,028 autopsies, they found 86 cases where death was due, directly or indirectly, to acute appendicitis. Subphrenic abscesses occurred in eight and a fraction per cent of these cases, so that in fatal cases of appendicitis, a subphrenic abscess may exist in from 8% to 10%. They found that the infection extended to the under surface of the diaphragm, through the retro-peritoneal tissues, by the intra-peritoneal route or through the lymphatics.

Dr. Crandon has been good enough to examine the records of the Boston City Hospital, and found that there had been only 6 cases of abscess under the diaphragm which came to operation. None of these followed general peritonitis. One followed necrosis of the ribs, 1 came from empyema perforation, 1 was connected with a perinephric abscess, and 3 followed perforative purulent appendicitis. This collection does not include the multiple abscesses of the liver following appendicitis. I can add to these 3 cases; 1, at the time a most celebrated case, of Dr. William H. Thorndike, and 2 cases of my own.

The detailed description of the Boston City Hospital cases would be rather tedious, but there is enough similarity in the signs and symptoms to make a general description, perhaps, of value. All the cases were of relatively slow development, being respectively two, four, eight, ten and fourteen weeks; the one which perforated the diaphragm was fatal in a week. The temperature, pulse and respirations were markedly increased. Leucocytosis was present in all cases, varying from 16,000 to 29,500. Of the 9 cases, 8 were on the right side. The one on the left side had perforated the falsiform ligament of the liver. In all these cases the patients were obviously critically ill. In Dr. Thorndike's case, however, the patient was about for weeks without being obviously ill.

The characteristic symptoms of subphrenic abscess are the involvement of the diaphragm and the pleura. The upper abdomen seems full and the ribs are fixed. The physical evidence of increased liver dullness, the x-ray examination showing increased opacity, the top line being similar to the normal dome of the diaphragm, is rather characteristic. Metallic tinkling may be recognized in certain cases. The pus in all cases was thin, dark brown or gray, with a foul odor. The incision, with or without anesthesia, was made between the eighth and tenth ribs in the right mid-axillary line, but in one case an incision 1½ inches long was made to the left edge of the ensiform cartilage. The drainage should be free. Irrigation apparently added to the shock of the operation.

Of the 6 cases operated at the Boston City Hospital, 3 were practically moribund; 4 in all died shortly after operation, and 2 got well. Dr. Thorndike's case recovered; both of my cases died.

IMMEDIATE OPERATION *VS.* DELAY IN ACUTE APPENDICITIS.

BY G. W. W. BREWSTER, M.D., BOSTON,
Surgeon to Out-Patients, Massachusetts General Hospital.

IN the following remarks, the term "immediate" operation refers to a time when the case is first seen by the surgeon, and the question is decided whether an operation shall be performed. It is intended to show that, in the experience of the writer, the operation should be performed as soon as the case is presented except in those in which there is no doubt about the recovery without operation. In this sense many of the subsequent cases are spoken of as having an immediate operation in which it was many days after the onset. The term "delay" is used to signify a period of time that the surgeon deliberately postpones the operation, waiting for a more favorable time to operate. It does not refer to a waiting period, after a diagnosis of acute appendicitis has been made, because of a doubt whether an operation is indicated or not, but is used entirely in connection with the surgical treatment.

All statistics show that operations performed during the interval give the lowest mortality, less than 1%. Therefore, this is the ideal time for operation, and the ideal treatment in all cases must be to wait until the acute attack has subsided. That so many operations are performed during the interval shows that an equal number of individuals have passed through one or more attacks safely. Added to this number, there are those who have survived one or more attacks and have had no further trouble. All these cases go to show that appendicitis in its mildest form may be successfully treated by an operation after a period of delay.

The results of operations performed during the acute attack, before the process has extended beyond the region of the appendix, gives almost as low mortality as interval operations. In any of the acute cases, of greater severity than those in which operation is not deemed necessary, but

in which there is doubt whether there will be improvement or not without operation, immediate operation can be advised with the assurance that there is slightly more risk than if performed in the interval. At the same time the risk of a possible bad result from a delayed operation will be eliminated.

When we realize that almost all the fatal cases are due to the desire to have an operation performed in the interval, and that the acute attack has grown worse instead of subsiding, and necessitated an operation at a time when the risk has changed from almost nothing,to perhaps a certain death; then the great responsibility of advising against an immediate operation will be realized. After a case has been watched until it can no longer be operated during the early hours, then the fatal result may rest on the one advising this delay. I believe that the greater one's experience becomes, the less willing he is to advise against an immediate operation in cases in which there is a reasonable doubt about the severity. Whenever well-marked local symptoms persist for more than a few hours after the first signs of appendicitis, I believe that it is impossible to determine how far the process has gone in the appendix except by operation. I have, time and again, found a gangrenous appendix in cases in which there had been a doubt as to the necessity of an immediate operation because of the mild symptoms.

Is it better to operate immediately or to delay until the inflammatory process has become localized, in those cases of acute appendicitis which have progressed beyond the stage of either the possibility of recovery without operation, or the time when it can be done with slight risk? In the face of symptoms becoming steadily worse, I have never felt that I could be certain that there would be an improvement by delay, in fact I have felt that it was imperative to operate immediately. The successful result of operating in a number of cases in which it seemed so evident that there was a general infection, that a bad prognosis was given, makes me feel that it is impossible to determine before the abdomen is open whether there is a hopeless condition or not. It is this lack of absolute knowledge which justifies the position of operating on some cases which might have recovered, either from a delayed operation or without operation at all.

It is only in the severer cases then, in which there is thought to be a spreading infection, that the question arises whether an immediate operation or one after a period of delay offers the best chance of a successful result. On the one hand, Oehsner has stated that he has reduced the mortality of appendicitis by operating after a period of delay in these cases, and that the mortality of acute appendicitis should be 4% or less. On the other hand, the opinion of many surgeons who have written on this subject is that it is safer to operate without delay.

In studying the results of two hundred and forty operations, the total number I have performed up to the present time, at the Massachusetts General Hospital and in private cases, I have not been able to convince myself that delay was indicated in any of the severer acute cases.

TOTAL OPERATIONS.

	Cases.	Deaths.	
Interval	85	0	
Acute	144	6	4.1%
General Peritonitis	11	11	100%
Total,	240	17	7%

OPERATIONS IN 1904.

	Cases.	Deaths.	
Interval	22	0	
Acute	49	1	2%
General Peritonitis	4	4	100%
Total,	82	5	6%

In the group of 144 acute cases, I have included all in which I did not establish a diagnosis of general peritonitis at the operation. They include the cases without perforation of the appendix; those with perforation and gangrene, with and without abscess; and those with no evidence of walling off, with free turbid fluid in the pelvis and the right side. The operations were performed at intervals varying from seven hours to fourteen days from the onset of the symptoms. There were 21 of these cases in which the severity of the symptoms and the physical signs pointed to diffuse peritonitis. All were operated upon without a period of delay and all recovered. If these were classed with the cases I demonstrated to be general peritonitis at the operation, there would be 32 cases of acute appendicitis with diffuse peritonitis, with 11 deaths, a mortality of 34%.

Of the 6 fatal cases in the group of 144 acute cases, 2 deaths occurred in cases of two weeks' duration with well localized abscesses. One death was probably due to heat prostration, as no acute process was found in the appendix, and there were signs pointing to the former diagnosis. One death was due to intestinal obstruction, which occurred six days after the removal of a gangrenous appendix. The second operation was delayed too long. Thus there are only t2 cases out of the 144 (1.3%) in which the question could be raised about the possible result, if the operation had been performed after a period of delay. There were at least 5 cases in which I believe delay would have resulted in death.

The 11 cases classed as general peritonitis were operated upon either by a median incision or by multiple incisions, and pus was demonstrated throughout the abdominal cavity. Six belonged to the evidently moribund type, and would probably have died whether they were operated upon or not.

The method of operation in all the cases in which there was not a general purulent peritonitis, provided for the prevention of spreading infection by a carefully placed barrier of gauze around the region of the appendix, the removal of the appendix, the cleansing of the infected area, and the placing of drainage for this region. There was a minimum amount of manipulation

in the abdomen, and the whole operation was accomplished in from ten to twenty minutes.

Basing my deductions upon the experience derived from my own operations, I believe that the following conclusions are warranted:

(1) Delay is indicated in mild cases in which there is no doubt about the recovery without operation.

(2) Immediate operation is indicated in all other cases of acute appendicitis.

THE BACTERIOLOGY OF GENERAL PERITONITIS.

BY THOMAS J. MANAHAN, M.D., BOSTON.

From the Clinico-Pathological Laboratory of the Massachusetts General Hospital, Boston.

THE bacteriology of general peritonitis is perhaps best approached by studying the sources of the peritonitis and the organisms found at autopsy. The following represents a study of the bacteriology of the fatal cases of general peritonitis which came to autopsy in the clinico-pathological laboratory in the Massachusetts General Hospital during the past eight years. In this period 1,000 autopsies were performed, and out of this number 110 cases presented the lesions of general peritonitis.

The facts obtained are of special value as they represent the observations of Dr. J. H. Wright and Dr. Oscar Richardson, and to them I am greatly indebted for the use of their material. Furthermore, there can be no question in these cases in regard to the degree or the extent of the peritonitis. Only those cases have been included where the entire cavity was involved and an inflammatory exudate of the general peritoneum was present.

The data obtained from the analysis of these cases is shown in the following table:

I have classified the facts obtained from these cases to indicate:

(1) The source of infection.
(2) The presence or absence of septicemia.
(3) As to whether the infection is pure or mixed.
(4) The organism or group of organisms causing general peritonitis.

The sources of infection causing the general peritonitis in this group of cases were as follows:

Perforated appendix, 24 cases.
Perforated appendix with abscess formation, 9 cases, making a total of 33 cases of appendicitis causing general peritonitis.
Peritonitis developing subsequent to laparotomy for other than suppurative conditions, 15 cases.
Perforation of the large intestine including the rectum, 8 cases.
Where the source of the infection was not found, 9 cases.
Salpingectomy for pus tubes, 7 cases.
Gastric ulcer with operation for perforation, 6 cases.
Typhoid perforation, 6 cases.
The extension of adjacent suppuration into the peritoneal cavity, 4 cases.
Extension of suppurative process from pleural cavity, 4 cases.
Following colotomy, 4 cases.
Perforation of small intestine, 3 cases.
Hemorrhagic pancreatitis, 1 case.
Extra-uterine pregnancy, 2 cases.
Ulcerative cholecystitis, 1 case.
Pylephlebitis, 1 case.
Intestinal obstruction, 1 case.

Septicemia. — The presence of septicemia in the fatal cases of general peritonitis is frequent. I found that 29% of all the cases showed a septicemia. The organisms causing the septicemia are as follows:

Streptococcus pyogenes, 24 cases.
Pneumococcus, 5 cases.
Staphylococcus pyogenes aureus, 2 cases.
Bacillus mucosus capsulatus, 1 case

In the 9 cases of idiopathic peritonitis, septicemia was present in 7 cases, in the following proportion:

Streptococcus septicemia, 4 cases.
Pneumococcus septicemia, 3 cases.

Bacteria Causing the Peritonitis. — Cases in which the peritoneal infection was pure:

Streptococcus, 20 cases.
Bacillus coli communis, 12 cases.
Staphylococcus pyogenes aureus, 6 cases.
Pneumococcus, 7 cases.
Bacillus mucosus capsulatus, 7 cases.

Cases in which the peritoneal infection was mixed:

Streptococcus and Colon bacillus, 28 cases.
Streptococcus and Bacillus mucosus capsulatus, 3 cases.
Staphylococcus and Colon bacillus, 2 cases.
Streptococcus, Colon bacillus and Mucosus capsulatus, 2 cases.
Streptococcus and Bacillus acrogenes capsulatus, 1 case.
Pneumococcus and Colon bacillus, 1 case.

The cases where the number of organisms were innumerable:

One case and in 21 cases the bacteriological examination is not stated.

From these observations it is to be concluded that the streptococcus, both in pure and mixed infections, is the organism causing the lesions in 43% of the cases. In the other 47% of the cases the reader is referred to the table where the relative frequency can be seen in the column of totals.

The bacteriology of the fibrinous exudate found in acute septic peritonitis is also of importance, and I will recall to you the observations made in nineteen cases which I presented in a paper before the Boston Society of Medical Sciences in April.[1]

Material was collected from 19 cases of acute peritonitis. In 17 of these cases bacteria was found in the fibrin. In 2 cases organisms were present in coverglass and culture, but could not be identified in the fibrin.

It is to be concluded from the observations in these nineteen cases that in most cases of acute peritonitis with fibrinous exudation, bacteria are present in large numbers in the fibrin.

THE RESULTS OF OPERATIVE TREATMENT OF GENERAL PERITONITIS FOLLOWING APPENDICITIS, AT THE MASSACHUSETTS GENERAL HOSPITAL, DURING THE PAST FIVE YEARS.

BY WILLIAM C. QUINBY, M.D., BOSTON.

To draw statistical deductions from the records of such a class of cases as that of general peri-

[1] Journal of Medical Research, June, 1903, vol. ix, p. 445.

SOURCE OF PERITONITIS.	NUMBER OF CASES.	SEPTICEMIA PRESENT IN CASES OF PERITONITIS.			PURE INFECTION.	MIXED INFECTION.	PURE INFECTIONS.					MIXED INFECTIONS.								
		Streptococcus.	Staphylococcus.	Pneumococcus.			Streptococcus.	Staphylococcus pyogenes aureus.	Bacillus coli communis.	Bacillus mucosus capsulatus.	Pneumococcus.	Streptococcus & Bacillus coli communis.	Streptococcus & Bacillus mucosus capsulatus.	Staphylococcus & Bacillus coli communis.	Streptococcus & Bacillus coli communis, Bacillus mucosus capsulatus.	Streptococcus & Bacillus aerogenes capsulatus.	Pneumococcus & Bacillus coli communis.	Innumerable Bacteria.	Bacteriology not stated.
Perforated Appendix without Abscess Formation.	24	1			6	11	1		2	3		9	1			1			7
Appendix Abscess.	9	1		1	5	3			3	2		1	1					1	1
Following Laparotomy for other than suppurative conditions.	15	5			10	4	7		2		1	3		1					1
Cause not found.	9	4		3	7	2	3				4	2							
Perforation of Small Intestine.	8	3			1	5	1					4			1				2
Salpingitis.	7	2			2	3	1		1			2		1					2
Gastric Ulcer with operation.	6	2	1		3	3		2	1			2					1		
Typhoid Perforation.	6		1		1	2		1				1	1						3
Extension from adjacent suppuration.	4	2			4		2	2											
Extension from Pleural Cavity.	4	1			3		1		1		1								1
Colotomy.	4				2	1	1		1			1							1
Abortion.	4	1		1	3	1	1		1		1	1							
Extra-uterine Pregnancy.	2	1				2						2							
Gastric Ulcer without operation.	1																		1
Hemorrhagic Pancreatitis.	1																		1
Ulcerative Cholecystitis.	1				1			1											
Pylephlebitis.*	1				1					1									
Intestinal Obstruction.	1									1									
Perforation of Small Intestine.	3	1			2		2												1
Total.	110	24	2	5	51	37	20	6	12	7	7	28	3	2	2	1	1	1	21

* Septicemia B.Mucosus Capsulatus, 1 Case.

tonitis following appendicitis must involve a certain amount of error. The conceptions and definitions of what constitutes a general peritonitis are so infinitely varied that at first sight it might seem that any such numerical expression of results would be absolutely invalidated. While from the point of view of absolute accuracy this is true, nevertheless, general conclusions approximating the truth can doubtless be drawn. It is, therefore, with the hope of general rather than specific accuracy that the following results are offered.

In the records are found classed as general peritonitis all grades of cases, from those of appendix abscess with a certain amount of clear fluid free about it, to those cases where the appendix, sloughing and gangrenous, has not become walled off, and pus is found in literally every region of the abdominal cavity. It immediately becomes evident that some definition of general peritonitis must be devised according to which the cases may be classified.

Since the formation of pus is the latest stage of such inflammatory conditions as this of which we treat, and since there is in every case, the greatest probability of its containing infectious organisms, it has been thought best to consider a case one of undoubted general peritonitis where at operation it was demonstrated that pus was situated throughout the cavity, and to consider as doubtful those cases where it was localized in the flank or pelvis, and so on.

This classification is necessarily arbitrary, and at the most can only succeed in separating the cases into two groups, the first of which includes those casesin which the process is spreading, while the second concerns only those cases in which it has been shown to be already general, as judged by the diffuse localization of pus.

As types of these two groups, the following brief cases may serve to make the distinction somewhat clearer.:

GROUP 1. SPREADING PERITONITIS.

Man, thirty years. Sick two days. Marked spasm and tenderness of the right side of the abdomen; none on the left. No shifting dullness. Temperature 102°, pulse 108, respiration 30, whites 17,000. Operation showed pus in the pelvis and cecal region, with a slight amount of turbid fluid in the right flank. Appendix gangrenous. The culture showed colon bacilli.

GROUP 2. GENERAL PERITONITIS.

Man, twenty-three years. Sick two days. Pale, peritoneal facies. Abdomen slightly distended and especially tender in the right lower quadrant. Dull in both flanks, and above the pubes, the dullness shifting with change of position. Temperature, 100.4°, pulse 100, respiration 34, whites 16,000, iodine reaction positive.

Operation showed a large amount of cloudy fluid, on entering the cavity. Thick pus was found about the appendix, and in the pelvis, while the epigastrium, hypogastrium, left flank and splenic regions contained a turbid sero-purulent fluid, appendix perforated and gangrenous. Culture from hypogastrium showed streptococci.

In collecting the following figures, only the operated cases have been considered.

Taking the cases as found, the following can be deduced:

Whole number of cases, 161.		Lived 55	34%
		Died 106	66%
Average age 23 years; Males 72%, Females 28%			
By year.	Number of cases.		
1899	25	Lived 7	28%
		Died 18	72%
1900	35	Lived 8	23%
		Died 27	77%
1901	43	Lived 15	35%
		Died 28	65%
1902	25	Lived 9	36%
		Died 16	64%
1903	33	Lived 16	48%
		Died 17	52%

Excluding all cases except those which fall within the reqirements of our second group, we find the following:

Number of cases of undoubted general peritonitis, 81,	Lived 24	30%
	Died 57	70%

Of the above 57 fatal cases, the various times of death after operation may be summed up thus:

Within the first 24 hours after operation,	17 or 30% died.
On the 2d day after operation,	7 or 12% died.
On the 3d day after operation,	8 or 14% died.
On the 4th day after operation,	3 or 5% died.
On the 5th day after operation,	4 or 7% died.
On the 6th day after operation,	3 or 5% died.
On the 7th day after operation,	3 or 5% died.
During the 2d week, after operation,	7 or 12% died.
Over two weeks after operation,	5 or 9% died.

Of these fatal cases, those which were ill the shortest time before operation seem in general to be those which survived it the longest, though the data are too inconclusive to express this point numerically.

As to the results following different methods of operation, such as washing *versus* wiping, it has been impossible to draw conclusions, since in practically all cases the abdomen was more or less thoroughly washed with salt solution at some period of the operation.

So, too, the reports of cultures as they stand in the records do not suffice to deduce anything as regards the relative toxicity of the various bacteria found.

A secondary operation for the condition of peritonitis, following the primary one, seems from our cases to be almost invariably fatal, only one case having survived.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY, IN CONJUNCTION WITH THE BOSTON MEDICAL LIBRARY.

The Meeting of the Section for Surgery was held at the Boston Medical Library on Jan. 4, 1905, Dr. F. B. Harrington in the chair. The subject for the evening was

THE TREATMENT OF APPENDICITIS.

DISCUSSION.

DR. HOMER GAGE, Worcester: I thank you, Mr. President, for your kind invitation to share in this discussion, because it gives me an opportunity to thank you, and the officers of these meetings, for the very attractive program which you have arranged for this winter, and for the very cordial invitation to be present, which you have extended to us who are not so fortunate as to live here.

The papers and the discussion this evening have been very interesting and very profitable. It is certainly important that we should arrive, if possible, at some definite and easily comprehended rules for action in so common an affection as appendicitis. But the larger my experience, the less able I feel to formulate any simple, definite rule, by which I am led to decide for or against operation in these cases. The personal equation of one's judgment, training and temperament enters so largely into the decision, that it makes the attempt to formulate any rule which could be safely followed by the profession at large seem well-nigh hopeless. There are, however, certain general principles which may properly, and do to a large extent, influence all of us.

In a perfectly typical case of acute appendicitis I can see little reason for postponing interference. I can say now, more strongly even than I have before, that I have never regretted an early operation, but have often regretted being obliged to do a late one, either through my own or another's procrastination.

If it were true that a localized inflammation would remain localized, and meanwhile the protection of the peritoneal cavity would become stronger and more complete, there would be some excuse for delay. But how often we find an isolated abscess with its walls covered with coagulated lymph, and this same lymph extending into the protective wall of the abscess, between the adherent coils of intestines, indicating an extension of the infection; and on carefully separating these coils and following the path of the lymph, come upon a second abscess, and in later cases, upon even more generally diffused suppuration. If there has been no such extension, it seems to me that with a proper and careful technique, the danger of extending the field of infection by operation is practically nothing, while if the infection be of the active, progressive type, interference can never be too early.

Of course there are cases which, when first seen, have progressed so far that etherization and operation are out of the question; and others which are so mild that haste seems wholly unnecessary. The selection of these must always be left to each individual surgeon's judgment and surgical sense; they can never be decided by rule. But in the average case, when the picture is complete, and the diagnosis only too apparent, it can be safely said, I think, that prompt and immediate operations are almost always best.

The problem is much more difficult and complex in the milder atypical forms, when the process is subacute, the picture incomplete, and many of the usual symptoms lacking, when the diagnosis, though it seems probable, is by no means certain, cases where the tenderness and muscular resistance are often wholly wanting, or where pain and tenderness, though definitely localized, are present only for a very few hours. These are the cases which come to the surgeon between the attacks, present no physical signs, and must be judged wholly from the patient's or attending physician's story. Some of them are real, some of them are not. Some of them are among the most brilliant of our operative successes, judged from the permanent improvement in general health which sometimes follows.

But not all of them are really appendicitis, and not all of them are proper subjects for operation. The temptation to operate is strong, because the danger is nothing, but it seems to me that the avoidance of unnecessary mutilation is demanded of surgery now more than ever, because it is so easy and so safe. The ability to recognize, and the courage to maintain the wrong time for operation, as well as the right, is quite as necessary to the possession of the highest surgical skill, as manual dexterity, and this class of cases demands that ability in the highest degree. Delay in these cases is not only permissible but obligatory, until the rôle of the appendix, as a causative factor, shall have been established beyond reasonable doubt.

I am unable to see that Sir William Macewen, in his recent lecture, has contributed much to our knowledge of the function of the appendix, or given any sufficient reason for supposing that its removal interferes with the normal functions of the body; but necessary or unnecessary, the removal of normal appendices on mere suspicion seems to me much to be deplored.

DR. H. L. BURRELL: I did not intend to speak as the subject of appendicitis has been very well summarized by the various speakers. Ochsner's treatment of appendicitis has been alluded to and no one has spoken of practical experience with this method of of treatment. I have used Ochsner's treatment in selected cases. When I see a patient who has an acute appendicitis which has been going on four or five days with symptoms that indicate that the process about the appendix is not walled off — if there is some good and sufficient reason for not operating, for example, an intercurrent affection, such as pregnancy, severe bronchitis or pneumonia — I do not hesitate to use Ochsner's treatment to assist nature in walling off the process of inflammation about the appendix.

Ochsner's treatment as I have carried it out consists of the following measures: gastric lavage, in cases of nausea and vomiting; no food by mouth; the patient's strength to be supported by pre-digested, non-irritating, nutrient enemata, four ounces at a time, every four to six hours; water may be given by mouth and, when necessary, morphia is given hypodermically to control the peristaltic movements of the intestine. In several instances I have used the Ochsner treatment where the patient for some reason has been violently shaken up, for example, in transportation. But I wish it clearly understood that I only use Ochsner's treatment long enough to wall off the inflammatory process about the appendix. I then operate and remove the appendix.

I do not wish to be understood as advocating the Ochsner treatment as applicable to all cases of appendicitis. I entirely agree with the position taken by Dr. Richardson, that the sooner an acutely inflamed appendix is removed the better. The difficulty in applying Ochsner's treatment to appendicitis is that personally I do not possess sufficient diagnostic skill to assert that in an individual case the appendix is or is not seriously inflamed. An inflamed appendix, unfortunately, does not necessarily manifest itself by sufficiently conspicuous symptoms to warrant our stating whether it is mildly inflamed or whether it is gangrenous. Repeatedly, in my own experience and in that of my colleagues, I have seen cases that were supposed to be mild cases of appendicitis operated upon, and a gangrenous appendix found and removed. Ochsner's treatment is logically a capital method of assisting nature in walling off an inflamed process.

Dr. Homer B. Smith has been kind enough to look up cases of appendicitis that I have treated by the

Ochsner method at the Boston City Hospital. In addition to these I have looked over my own records and those of the Children's Hospital where I have used Ochsner's treatment. I find that in all there are twenty-three cases. An analysis of these cases, as to whether Ochsner's treatment was a valuable measure or not, makes it clear to me that in selected cases it is a measure of distinct benefit. In only one case of this series have I any question as to the advisability of having adopted this method of treatment. There can be but little question as to the advisability of Ochsner's method of treatment in any case that for good and sufficient reason cannot be operated upon at once.

DR. WM. N. SWIFT, New Bedford: Every attack of appendicitis indicates operation, in my opinion, unless something in the patient's condition prohibits it,—immediate operation, except in very mild cases, and subsequent removal of the appendix in such cases. By immediate operation, I mean that the operation should be done as soon as the diagnosis is clear and the preparations can be made. A delay of a few hours may make a vast difference in the prognosis, if the appendix be gangrenous or ruptured or on the point of rupture. If the onset is mild, the temperature and pulse fall to nearly normal and the local signs diminish about the time we are able to make a diagnosis, we are justified in waiting, but if the tenderness over the appendix persists for several days and does not grow less from day to day, I believe that delay is dangerous and operation should be done. In such cases there will, in my experience, be found a constriction or obstruction at some point in the appendix with distention of the distal portion.

When the case is not seen before a mass can be felt in the appendix region, operation is always indicated with as little delay as possible. The subjective symptoms in such cases give very little indication of the character or the extent of the process that may be going on. Such conditions may clear up spontaneously, but usually there is too much pus to be absorbed, and, while we are waiting for it to be more securely walled off from the abdominal cavity, serious mischief may be caused by the burrowing, or it may be on the point of discharging into the abdominal cavity, or into the intestines. As I have said, the subjective symptoms cannot be relied on to indicate the condition, for when the patient seems to be doing well, he may be on the verge of a fatal accident. It is always of immense advantage to remove the appendix itself, and the longer the delay the more difficult this is made. When an appendix abscess is simply opened and drained the case may do well, but often secondary operations are necessary and these are always complicated.

I have never seen general peritonitis caused by the breaking up of the wall of an appendix abscess. I have broken up the wall of such an abscess in a great many cases, of course using as much care as possible against infection. The removal of a mass of inflammatory exudation and infiltrated omentum, usually forming a part of the abscess wall and often studded with miliary abscesses, is important. When the case has gone on for ten days or more, the inflammatory exudation has become so much organized that it is often impossible to remove the appendix without too much violence.

I believe that operation should be done in every case unless the patient's condition is so desperate that any interference is dangerous. When the patient's condition is not good, there should be very little manipulation. The time of operation should always be short. In pus cases the incision should be large enough to give a clear view and free drainage.

In regard to incision, I think there is always an advantage in the muscle-splitting method through the oblique muscles, except in general peritonitis. I always make my skin cut well out towards the iliac spine. The greatest advantage is, that one comes directly on the appendix, or the appendix abscess. If the case be a clean one, the results by the method are perfectly satisfactory by closing the wound with catgut in layers. If more room be needed, the internal oblique and transversalis may be cut, either above or below, the intestines pushed off with gauze and the drain from the infected area be brought out along the side of the pelvis. This method of drainage is especially important where there is pus deep in the pelvis. With the patient well over on the right side, this makes a very perfect gravity drain. In regard to the treatment of the stump, I have been accustomed to tie off with catgut, burn the appendix off and bury the stump. I am convinced that it is better to simply cauterize the stump without burying it. This I have done in my last cases. I suppose everyone who has operated on a number of cases of chronic appendicitis must be impressed by the reflex symptoms caused by a diseased appendix. The digestive and general nervous disturbances caused by such a condition are very marked. The improvement in the nervous system and in the general health of the patient, after operation, is often surprising. It seems to me that not enough emphasis has been put on reflex symptoms caused by chronic appendicitis.

The following are statistics of the last 100 cases of acute appendicitis, no interval cases included, operated on at St. Luke's Hospital New Bedford. Eight died, six general peritonitis. In each case the general peritonitis preceded the operation. Two general septicemia. Appendix removed in 89 cases. In 11 cases not removed. In 37 cases wound closed at once without drainage. Last 50 cases of acute appendicitis operated on. One death. Patient sixty, poor condition, gangrenous appendix, general septicemia. No general peritonitis as shown by autopsy. In 43 cases the appendix was removed. In 7 cases not removed. In 24 cases the wound was closed at once without drainage. Of these 24 cases 6 were operated on the first day of the disease, 7 on the second day, 5 on the third day and in 6 the duration of the disease was unknown.

DR. JOHN C. MUNRO: I have to-day carefully reviewed all my cases of operation for appendicitis and I am growing more and more sceptical of the diagnosis of acute general peritonitis. I find that I have catalogued only 13 cases as acute general peritonitis, and of these I should to-day reject 6 as not coming within that category according to my present ideas. Of the remaining 7 cases a few are doubtful.

The more I see of these severe, diffuse types, simulating or diagnosticated as general infectious peritonitis, the less do I meddle with them at operation. I have found in my own experience and I also find in analyzing the published reports of surgeons who are advocates of extensive irrigation that although the cases temporarily improve, that is, those that do not die at once from the mechanical shock that irrigation is bound to produce, they are very liable to suddenly collapse and die in the course of a day or so. In other words, I believe that a peritonitis apparently general, but really quite localized so far as infectious quality goes, is made a *bona fide* general peritonitis by indiscriminate irrigation. I am positive that my results are better now that I am content with free local drainage without disturbance of the intestines more than is absolutely necessary.

Furthermore, in cases seen after forty-eight hours from onset, where the clinical evidence goes to show a

general abdominal infection, I am more and more inclined to resort to the so-called Ochsner treatment, watching the patient closely from hour to hour, and if after twelve hours there is no gain or the treatment is apparently inapplicable then I operate, but ordinarily, they do quiet down at once, and within a few days they are cases of local and not general or diffuse infection, they have made antitoxin of themselves sufficient to be of great help and an operation is easily and safely done.

The cases that I dread most and that I hesitate to use this form of treatment in, are those where the family physician has administered large doses of cathartics so that the peristaltic action is not liable to subside under starvation. It is then safer to open and drain rather than wait. If this section can do no more than to impress on the general practitioner that the worst possible treatment of an appendicitis in the early stages is the administration of cathartics it will not have lived in vain. It is this method of treatment that makes general peritonitis in cases that should remain locally infected.

Dr. Burrell has spoken about subphrenic abscesses. From a number of observations at operation and autopsy, I believe that a larger proportion than the books recognize are direct extensions from hepatic abscesses. In other words, the late cases of which he makes mention are liable to follow such abscesses which are the results of portal pylephlebitis, a type of infection generally slow and insidious, whereas the subphrenic abscesses that come early are apt to be direct extensions of the infection through the inter-peritoneal lymphatics. In the former class I believe that access is best gained directly through the abdomen, evacuating the hepatic sources at the same time.

A word with regard to enterostomy. I have only made use of it for distention of the small gut coming after operation on the appendix. I do not believe that it is indicated elsewhere and I prefer to use a rubber catheter rather than the rigid Mixter tube.

I cannot indorse Dr. Stevens' description of general peritonitis because I have seen too many cases with a localized infection, some of them fatal, that would be classed under general peritonitis according to his arrangement; while on the other hand I have seen genuine purulent peritonitis with normal pulse and temperature.

Dr. E. W. Cushing: To have a clear understanding of the frequency with which death follows appendicitis, when complicated by general peritonitis, it is requisite that the term "general peritonitis" be accurately defined. We may assume that general septic peritonitis is meant and not merely an adhesion of peritoneal surfaces, such as may arise from various causes which are not dangerous. Those of us who did much abdominal work before surgical technic was worked up to a satisfactory condition have a grim remembrance of general peritonitis as a condition in which all patients used to die, and neither drainage nor irrigation nor anything else could save them. There was not much pus but a well-marked condition of the intestines with injection of the vessels, loss of polish, and exudation of lymph and a seropurulent fluid. The mere fact that there is free fluid in the general peritoneal cavity, even if it is frankly purulent, does not necessarily imply that there is general peritonitis, and I think that it is fair to assume that in the cases which recovered the vital resistance of the patient was such that the peritonitis remained localized in the neighborhood of the appendix, while the rest of the peritoneal cavity, although bathed in the purulent fluid, withstood the infection.

The ages of the patients are not given in the tables before us, but it would be interesting to know what the relation of age was to mortality. Children and young persons seem to have a greater power of resistance and therefore less mortality. It would appear that even during the short period of inflammation before the appendix is perforated the system of the patient is developing its powers of resistance, so that when rupture occurs, even although pus or serum is quite free in the abdomen, yet if drainage is furnished a considerable proportion of cases recover. We observe an analogous process in inflammations of the Fallopian tubes, for if the pus has been confined to the tube for a fortnight or so, even if it is spilled into the abdominal cavity during operation, the patient seems protected from general peritonitis by an acquired immunity.

Dr. Fred T. Murphy: I wish to report the results of some experiments on the drainage of the general abdominal cavity of cats. I have found that gauze wicks and cigarette drains are walled off from the general abdominal cavity in about eighteen hours, and glass tubes and rubber-tissue drains in about seventy-two hours. In my opinion these figures represent the maximum interval during which it is possible to drain the general abdominal cavity with the materials used, except in the case of a general purulent peritonitis. The general purulent peritonitis may be drained for a longer time because the peritoneum has lost the power to form adhesions, but in this type of case drainage of the general septic cavity has been found to be without value. Where the peritoneum has been irritated and has begun to form adhesions, as in the ordinary case of intra-abdominal infection, the drains are probably walled off much more speedily.

Recent Literature.

A Reference Handbook of the Medical Sciences, Embracing the Entire Range of Science and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M.D., Illustrated. New York: William Wood & Company. 1904.

The final volumes of this handbook, it is hardly necessary to say, maintain the exceptionally high standard set by the earlier volumes. In bringing this work to a successful conclusion, with the various complications which must have arisen in the course of its preparation, Dr. Buck deserves the highest degree of credit. In his final editorial note he acknowledges his indebtedness to the various contributors, but it should be remembered that however essential the individual contributions may be, the work of arrangement is even greater. In general, as we have looked over each succeeding volume, we have been impressed with the evident care which the individual writers have taken in the preparation of their respective articles. The illustrations have often been by elaborate processes and much more numerous than in previous editions, colored plates and heliotypes being used where necessary. The book as a whole will no doubt stand as the best epitome of medicine in the English language. That a new edition will be called for as the progress of medical science demands is hardly to be doubted. We commend the work as a most valuable book of reference. The final volume is concluded by an admirable index which adds much to the general usefulness of the books.

THE BOSTON
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THE PRESENT STATUS OF CANCER INVESTIGATION.

WE have recently received the third annual report of the Caroline Brewer Croft Cancer Commission of the Harvard Medical School and the fifth annual report of the work of the Cancer Laboratory of the New York State Department of Health. As our readers are no doubt generally aware, vigorous and painstaking study has been prosecuted for several years at these two laboratories on the question of cancer etiology. It is also generally known that the investigators of the two laboratories have arrived at very different conclusions on many phases of the subject. On the whole, the attitude of the Harvard investigators has been one of increasing discouragement in relation to the protozoön origin of the disease, whereas in Buffalo the question is still exciting much interest and hope that through further investigation a solution of the problem may be reached. We naturally cannot at the present time determine which body of workers is in the right or how far their conclusions may be modified by the investigations of the next few years. It is, however, of importance to note the preliminary conclusions which students of various aspects of the subject have reached.

In the Harvard report five authors contribute communications. Dr. F. B. Mallory offers a contribution to the classification of tumors based in part on his latest investigations of certain fibrils revealed by recent methods of staining. This work is a valuable contribution to a rational classification, but it does not particularly concern the cancer question. Dr. R. B. Greenough discusses the nature of the cell inclusions of cancer, a subject upon which he has previously worked, and among others reaches the following conclusions: That typical cell inclusions are practically constant in cancer of glandular origin; that these inclusions are presumably vacuoles; that the vacuoles are chiefly a phenomenon of cell secretion, and that, in general, no reason exists for the interpretation of these appearances as of parasitic origin. Drs. Vose and Howe have studied the effects of the Röntgen rays upon cancer, and conclude that the x-ray cannot be used strongly enough to effect destruction of any but the shallowest tumors without the production of a probably non-healable burn. Surgery should not be replaced by the use of the x-ray even in superficial conditions. Dr. E. H. Nichols' contribution to this report contains the results of his work on the implantation of tissue and its relation to cancer. His conclusions are as follows:

(1) Certain types of epithelium (epidermis), both adult and fetal, can be experimentally removed from their normal position and implanted into another part of the same animal, and under those circumstances can maintain their "potentiality of growth," retain their own peculiar character, and produce nodules analogous to dermoid cysts or more complicated teratomata.

(2) In no case has any epithelium of a highly differentiated function been seen to maintain its power of growth or to proliferate.

(3) The "potentiality of growth" is greater in the case of fetal than it is in that of adult tissues.

(4) In no case has any infiltration of surrounding tissue of the transplanted epithelium been seen, nor any tendency to epithelial metastases.

(5) Certain fetal connective tissues (cartilage) can be transplanted in the same way as epithelial tissues, and retain their "potentiality of growth."

(6) Transplanted fetal tissues do not reproduce the stage of development at which they are transplanted, but tend to reproduce the ultimate stage of their normal development.

In general, therefore, it may be seen that at present the opinion of the Cancer Commission of the Harvard Medical School is one of extreme skepticism regarding the recent claims made by certain students of the subject. The work leading to these conclusions has been most carefully done and must unquestionably be given much weight in a final determination of the question. It is, therefore, of great interest to turn to the report of the Buffalo Laboratory, which takes a much more optimistic view of the possibilities of work in the future along lines already laid down.

The most significant article in this report is one on "Cell Inclusions in Carcinoma" by G. N. Calkins, Ph.D., who a year or more ago was appointed consulting biologist to the laboratory.

It will not be questioned that Dr. Calkins is peculiarly fitted to render an opinion upon the morphological appearances observed in cells. He writes the most important contribution to the general subject, with careful analysis of his findings in a study of various growths. He finds, in general, that there are two main groups of inclusions in carcinoma, encapsulated and without capsules. Of the encapsulated inclusions he finds several forms which have been variously and erroneously interpreted as stages in the life history of protozoön parasites. The non-encapsulated inclusions, he thinks, must be correctly interpreted before any hypothesis is advanced. Finally, he entertains the possibility at least that, even though few, the activity of parasites may be causative of tumor growth. This article is written in a most judicial spirit and without dogmatism. It apparently admits that the question is not yet wholly closed regarding the parasitic origin of cancer.

Dr. Gaylord publishes a paper on the analogy between smallpox and cancer, in which he discusses Councilman's work and compares it with the appearances in cancer. Other papers, many of them of a chemical nature, follow in this report showing evidence of much painstaking work, which may in the future lead to results the importance of which are not yet evident. Dr. Roswell Park apparently sees much reason for continuing investigations already begun at the laboratory, and points out the advisability of physico-chemical study and work on practical questions looking toward immunity against the disease. As one looks over these two reports, different as they are in their general attitude toward the problem, one is impressed with the fact that comparatively little has been done, except in a negative way, toward the final solution of the questions at issue.

SURGERY OF THE NERVOUS SYSTEM.

The subject of surgery of the nervous system has had fewer painstaking students than its importance warrants. This has, no doubt, been due partly to the relative lack of material in divided hospital services, and partly to the less favorable outcome than pertains in other departments of operative surgery. It is, in general, leaving out the peripheral system, a somewhat discouraging field from a purely surgical standpoint.

As is generally known, owing to the liberal policy of the Johns Hopkins Hospital, it has been possible for Dr. Harvey Cushing to control the neurological material coming to that institution and thereby to gain an experience in surgery of the nervous system which has been possible to few others. Dr. Cushing's contributions to the general subject have unquestionably been productive of much good in attracting renewed attention to the possibilities of surgery in this part of the body. In a recent article, published in the *Bulletin of the Johns Hopkins Hospital*, Dr. Cushing summarizes his views formed during the last few years, and makes many suggestions which are worthy of wide publicity. In the first place he insists that the man who operates should have an actual interest in the neurological aspects of the case beyond the mere operative procedure required. He sees no reason why the same knowledge should not be expected of the operator on the nervous system as is expected of the operator on an abdominal tumor. We have no question that herein is expressed one of the chief difficulties in exciting general interest in this department of surgery. In the observations which follow we are not surprised to find that Dr. Cushing takes a somewhat radical view of the possibilities of surgical interference in a great variety of affections. He is in favor of operation upon gummata of the brain which give rise to focal symptoms before too prolonged a use of mercury and iodine. He suggests the possibility also of operations on various forms of hemorrhage, both extra- and intra-cerebral which have usually been regarded as beyond surgical aid. Particularly in infants he thinks that birth hemorrhages should receive operative attention in view of the serious results of such lesions later in life. His experience in cases of apoplexy has hitherto been unfortunate, but he has hopes of relief even in these cases. In operations done for purely palliative reasons in cerebral tumor the wise suggestion is made that a silent area of the brain may better be chosen as the site for the trephine than the motor cortex, in order to avoid unnecessary paralyses. In cases of traumatic injury of the spinal cord operation is favored, except in those instances where there is evidence of complete transverse lesion of which he says, "In these, operation can do no harm, but it is an unjustifiable ordeal for both patient and operator." The interesting work on the peripheral nerves which has lately appeared is also summarized in an entertaining fashion.

We call our readers' attention to this article as the best recent summary of the surgery of the nervous system as viewed by a special student of the subject who brings to his work, not only

much surgical skill, but also a corresponding neurological knowledge. We have no doubt that experience, tempered by judgment, will render possible far more satisfactory surgical results in the central nervous system than have heretofore been obtained. It is a matter of regret that others should not be given the same opportunity which Dr. Cushing has had at the Johns Hopkins Hospital.

COUNTRY BRANCH OF THE NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL.

THE feature of most interest in the Thirty-seventh Year Book of the New York Orthopedic Dispensary and Hospital, just issued, is the account given of the new country branch of the institution. This is located at White Plains, Westchester County, and up to the end of the fiscal year the building and improvements had cost $117,767. To the original endowment of $250,000, the donor of the branch, Miss Watson, added during the year a gift of $35,000; and since the close of the fiscal year she has made a further gift of $54,000 to the endowment fund, besides $10,000 to cover the overdraft on the building fund. The building (the present capacity of which is 50) was opened on July 5, and now has 39 patients in its wards. The same care is observed at the country branch in the surgical treatment of each patient as at the city hospital. This is rendered possible by having a staff of nurses and a resident surgeon, and by frequent visits from the surgeon-in-chief, Dr. Russell A. Hibbs. In his annual report, Dr. Hibbs states that the addition of this hospital to the working equipment of the institution makes it possible — in so far as its capacity will allow — to have under continued observation an individual cripple from the beginning of treatment all through the years necessary to a cure; the child starting first in the city hospital and upon reaching convalescence going to the country branch, to remain until cured. Here the important influence of pure air, sunshine and good food, in conjunction with appropriate surgical treatment, will, it is confidently expected, hasten the recovery of patients and make their cures more secure against relapses. Two teachers have already been engaged, and the work along the lines of the public school system of education has been begun, while it is purposed to establish at an early date a system of individual training, so that each child, on leaving the institution, will have regained his health and, besides, acquired sufficient knowledge of some useful occupation to make him self-supporting. Dr. Hibbs thinks that the education of a crippled child should be accomplished under the supervision of the surgeon, and that this may be done without in any way sacrificing the success of his work. The two, surgeon and educator, should work together, the former always guiding the latter in the amount and character of the demands made upon the child in the promotion of his education. As a large proportion of the cases treated in orthopedic hospitals and dispensaries are those suffering from joint tuberculosis, the strain upon the resources of the city institution will be relieved by the removal of such patients to the country branch, where the surroundings are such as to facilitate their recovery. In this way it will be possible to give proper care to those cases suffering from non-tuberculous conditions, whose necessities are great and will respond rapidly to more thorough methods of treatment. Although the country branch has been opened for a short time only, the patients who have been treated there for the longest period show marked improvement, and this new departure would seem to represent a distinct and important advance in the realm of orthopedics.

DR. DRAPER'S RETIREMENT AS MEDICAL EXAMINER.

DR. F. W. DRAPER'S retirement from the position of medical examiner of Suffolk County, after an arduous service of twenty-eight years, deprives the city of one of its most valued officials. It will be difficult to fill his place, but Dr. Draper has had the wise foresight to announce his intention thus early, although his actual service does not expire until June 30, in order that there may be sufficient time for a deliberate choice of his successor. In his letter of resignation to the governor, Dr. Draper expresses himself as follows:

"After twenty-eight years of activity in a responsible and exacting line of official duty, I desire the relief which a change of service would bring, and I have long anticipated the leisure which a resignation at this time would effect. I have postponed the time when the change shall go into effect, in order that your Excellency may have adequate time for deliberate choice of my successor among available and desirable candidates."

There will be no question that the leisure which Dr. Draper anticipates has been well earned. The type of public service which he has rendered is peculiarly exacting and for its best performance

demands the highest qualities of mind and character, together with much technical skill. So far as we are aware there has never been the faintest criticism of his work from any source, and he now retires with the consciousness that he has done his difficult task to the eminent satisfaction of the public whom he has disinterestedly served. It is fitting that on the eve of his retirement he has published a book, embodying his wide experience of medico-legal matters, which should serve as a stimulus to his colleagues and successor.

That a competent man will be found to carry on his work is not to be questioned. Such a man should be well versed in the technic of post-mortem examinations and, furthermore, should have those qualities of judgment and character, which alone can lend dignity to the office.

MEDICAL NOTES.

Death of a Physician from Meningitis. — Another instance of direct infection from patient to physician has occurred in Philadelphia. Dr. A. B. Craig, while attending a fatal case of cerebrospinal meningitis, contracted the disease in a highly malignant form, from which he died, after a brief illness, on March 11. Dr. Craig was an assistant of Dr. W. W. Keen and a man of much promise. He was thirty-three years old at the time of his death and had been married but six months.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, March 22, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 23, scarlatina 33, typhoid fever 3, measles 9, tuberculosis 44, smallpox 0.

The death-rate of the reported deaths for the week ending March 22, 1905, was 19.61.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 18, 1905, was 233, against 253 the corresponding week of last year, showing a decrease of 20 deaths, and making the death-rate for the week 19.78. Of this number 128 were males and 105 were females; 226 were white and 7 colored; 148 were born in the United States, 84 in foreign countries, and 1 unknown; 53 were of American parentage, 147 of foreign parentage, and 33 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 19 cases and 6 deaths; scarlatina, 24 cases and 2 deaths; typhoid fever, 6 cases and 2 deaths; measles, 9 cases and 1 death; tuberculosis, 50 cases and 24 deaths; smallpox, 0 cases and no deaths. The deaths from pneumonia were 37, whooping cough, none, heart disease 25, bronchitis 6, and marasmus 1. There were 7 deaths from violent causes. The number of children who died under one year was 32; the number under five years 53. The number of persons who died over sixty years of age was 62. The deaths in public institutions were 66.

Death of Elmer H. Capen, LL.D. — We regret to announce the death of Elmer H. Capen, LL.D., President of Tufts College, which occurred March 22, from pneumonia.

Dr. Osler's Successor. — We are informed that there is no truth in the statement circulated in the daily press that Dr. William T. Councilman is to succeed Dr. Osler at the Johns Hopkins Medical School.

Brigham Will Sustained. — The United States Circuit Court of Appeals has sustained the validity of the Brigham will, amounting to a fund of approximately six million dollars. The will provides for the erection of a hospital in the city of Boston. The plaintiffs in the action maintain that the use of the entire fund for this purpose was not authorized. This bill is now dismissed through order of the court.

Appointment of Medical Examiner for Middlesex. — Governor Douglas has appointed Dr. George L. West of Newton Centre, a Republican in politics, medical examiner for the Seventh Middlesex (Mass.) District. Dr. West is a graduate of the Harvard Medical School. He has practiced medicine in Newton and is a member of the staff of the Newton Hospital.

Antivivisectionists have Leave to Withdraw. — It is announced that the petitioners for the bill recently introduced into the Legislature for the control of animal experimentation in Massachusetts have been given leave by the legislative committee to withdraw.

NEW YORK.

A Free Public University in Brooklyn. — Before a gathering of thirty of the most prominent citizens of Brooklyn, invited to hear his views, Controller Grout recently advocated the establishment in Brooklyn of a free public university. In such a project he would have as a nucleus the Brooklyn Institute, the site, buildings and maintenance of which are provided by the

city. In his plan there would be included the Brooklyn Public Library and, if possible, such private institutions as the Long Island College Hospital, the Packer Institute, the Adelphi College, the Pratt Institute, and the Brooklyn Polytechnic.

BEQUEST TO AURAL CLINIC. — Mr. Frank Tilford, who was recently elected a member of the board of managers of the Manhattan Eye and Ear Hospital, has given $25,000 for an aural clinic in the new building which is to be erected for that institution.

CENSUS OF HORSES AND COWS. — The Health Department has commenced taking a census of the horses and cows in the Borough of Queens, the work to include a careful inspection of the sanitary condition of all stables. Eighteen inspectors have been detailed for the purpose, but as the borough has a territory of 147 square miles, it will probably take a number of months to complete their labor.

DIFFICULTY AT THE LYING-IN HOSPITAL. — An unfortunate condition of affairs exists at the Lying-in Hospital, which was built through the liberality of J. Pierpont Morgan at a cost of over $1,000,000. On account, it is said, of friction with the medical director, Dr. James W. Markoe, the entire visiting staff, eleven in number, has resigned in a body. The institution is credited with nearly 7,000 confinements annually.

A DINNER TO DR. OSLER. — On March 11, a dinner in honor of Dr. William Osler was given at the University Club by the Charaka Club, a small organization of prominent representatives of medicine, art and literature in different cities, of which Dr. Osler has long been a member. Dr. S. Weir Mitchell of Philadelphia read a poem composed for the occasion, and a medal from the club was presented to the guest of honor. Dr. Charles L. Dana, the president of the club, acted as toast-master, and among the speakers were Drs. George L. Walton of Boston and William H. Welch of Baltimore.

PUNISHMENT FOR SALE OF ADULTERATED MILK. — A man convicted in the Court of Special Sessions of selling adulterated milk was recently sentenced by Justice Denel to ten days' imprisonment, and it is to be hoped that the example thus set will have more effect in deterring such offenders than the fines which have been hitherto imposed. An important departure has also been made by Justice Denel in arraigning and fining a member of a firm of dealers whose employee was found guilty of selling adulterated milk. The ground was taken that it is the duty of the milk dealer to see that the ordinance is not violated by his agent, and if the prohibited act is done by the agent in the course of employment, the principal is criminally liable.

FIRST PAVILION OF NEW BELLEVUE HOSPITAL. — At a meeting of the Board of Estimate and Apportionment held March 16, an appropriation of $850,000 was made for the construction of the first pavilion of the new Bellevue Hospital. This is to be located at the southeast corner of the grounds on the river front, and work upon it will be pushed, so that it may be completed at as early a date as possible. As it will have a capacity of 350 beds, it will serve to relieve greatly the present congested condition of the hospital. The various parts of the splendid new structure, the designs for which, it will be remembered, were prepared by the architectural firm of McKim, Mead & White, will be built in sections. The total cost will be nearly ten million dollars, and when completed the hospital will accommodate over two thousand patients.

EPIDEMIC CEREBROSPINAL MENINGITIS. — On March 16, an appropriation of $5,000 was made by the Board of Estimate and Apportionment to pay the expenses of the special commission on epidemic cerebrospinal meningitis proposed by President Darlington of the Health Department, and the latter has appointed the commission as follows: Dr. William M. Polk, Dean of Cornell Medical College, Chairman; Dr. Walter B. James, Professor of Medicine in Columbia University; Dr. William P. Northrup, Professor of Diseases of Children in the University and Bellevue Hospital Medical College; Dr. Simon Flexner, Director of the Rockefeller Institute; Dr. Edward K. Dunham of the Carnegie; Dr. Joshua M. Van Cott, Pathologist to the Long Island College Hospital, and Dr. William K. Draper, Physician to Bellevue and the Scarlet Fever and Diphtheria hospitals. On March 17, 119 cases of the disease, which seems to be still on the increase, were reported to be under treatment at 11 hospitals in the city. Of eight patients at St. Mary's Free Hospital for Children, four were from a single family.

BUREAUS OF FOOD ANALYSES. — Dr. H. D. Bigelow, assistant to Dr. H. W. Wiley, Chief of the Bureau of Chemistry of the United States Agricultural Department, has arrived in New York to make an examination of the Bureau of

Food Analyses, preparatory to the probable establishment of similar laboratories in Boston, New Orleans and San Francisco. The New York bureau was started about six months ago as an experiment, and in consequence of the facilities afforded by it importers receive their goods two or three days earlier than under the old system, when they were sent to Washington for analysis.

Miscellany.

THE LIMITATIONS OF THE VALUE OF NITROGLYCERIN AS A THERAPEUTIC AGENT.

H. P. Loomis has tested the effect of this drug on arterial pressure in patients by means of the sphygmanometer, and also in animals, and finds that high arterial pressure in man is not perceptibly affected by it nor is dilatation of the blood vessels apparent. Some of the conclusions reached are as follows: The usual dose of nitroglycerin of 1-100 gr. is too small to produce any effect in pathological conditions; 1-50 gr. is a minimum dose. It is a perfectly safe drug to use. Even in large and repeated doses the author has never seen any ill effects. Its effects are very transient, as shown by the experiments on the dogs, and the ordinary dose of 1-100 gr. every four hours could not possibly have any effect on the arteries. Nitroglycerin is said to increase the quantity of urine in chronic Bright's disease, but after keeping accurate records of the daily amount of urine passed, the author was never able to satisfy himself that any increase seen was due to this drug. In conditions due to arterial spasms, so-called, such as angina pectoris, migraine, asthma, nitroglycerin may be of benefit, in full doses often repeated, but not in arterial sclerosis where the arteries themselves are more or less changed. — *Medical Record*, March 18, 1905.

HOSPITAL RECORDS.

The amended Massachusetts Senate Bill No. 182, accompanying the petition of Francis D. Donoghue for legislation to require the keeping of records in certain hospitals, reads as follows:

Section 1. Hospitals supported in whole or in part by contributions from the State or any municipality, and incorporated hospitals offering treatment to patients free of charge, and incorporated hospitals conducted as public charities, shall keep records of the cases under their care and the history of the same in books kept for that purpose.

Sect. 2. Such record shall be in the custody of the person in charge of such hospitals or institutions, and shall be admissible as evidence in the Courts of the Commonwealth as to all matters therein contained.

Sect. 3. Section 17, Chapter 35, of the revised laws shall not apply to records kept as above provided.

Correspondence.

EYE STRAIN AND SCOLIOSIS: A REJOINDER.

Boston, March 17, 1905.

Mr. Editor. In your issue of March 9, there is a letter from Dr. George M. Gould of Philadelphia, in which he attacks certain statements made by me in regard to eye strain regarded as a factor in the production of scoliosis. I greatly dislike anything which smacks of medical controversy; but in justice to myself, I cannot allow this letter to remain unanswered.

Dr. Gould says that he received no reply to his letter written "about a month previous to March 24, 1904." Although Dr. Gould did not receive a reply, I wrote and mailed one. In this reply, I told Dr. Gould the substance of my observations, and also told him that I was at that very time writing a preliminary communication on this subject, and that I had been working on the subject for several years. I told him that I was to read my paper before the New England Ophthalmological Society on March 8 (1904). I read the paper on this date, and it was published in your issue of March 24, 1904. A few days after the latter date, I was greatly surprised to hear that Dr. Gould had received no reply to his letter. I at once wrote to him, telling him that I *had* written to him, and told him *what* I had written to him in the *first* letter. I received a very pleasant reply from Dr. Gould, in which he kindly offered to give any assistance he could in the collection of cases.

In my paper of Dec. 5, 1904, I said, "My experience has led me to believe that an oblique astigmatic axis, by causing the patient to tilt the head to one side, to obtain clearer vision (a fact with which every ophthalmologist is familiar), induces a faulty attitude," etc. Dr. Gould quotes this, but adds the words, "resulting in a lateral curvature." It is evident to me that he did not see what I meant. I meant that it was a familiar fact that patients with an oblique axis tilted the head to one side, but I did *not* intend to imply that it was a familiar fact that this tilting might give rise to a spinal curvature. If Dr. Gould so understood me, I cannot wonder that he demurred at my statement.

It is true that, in my first paper, I did not state categorically that an oblique astigmatic axis may induce lateral curvature, but I supposed that I implied the statement; for the paper begins as follows: "Every ophthalmologist is familiar with the fact that astigmatic patients, when one or both axes are oblique, and patients having vertical heterophoria, are apt to tilt the head to one side in order to obtain clearer vision." I meant to imply that *anything* which caused a tilting of the head might be a predisposing cause of scoliosis. The idea that an oblique axis might thus act was in my mind long before Dr. Gould wrote his letter.

I did not quote Dr. Gould in my first paper because the case he had described was a case of *torticollis* plus lateral curvature. All the cases on which I had based my theory were of lateral curvature alone. I did not "adduce illustrative cases" in my second paper because it was necessary to present a paper which could be read in less than ten minutes. Hence there was no time to do anything but outline my theory.

I beg to assure Dr. Gould that I have acted in perfect good faith, and that I have had no intention of treating him with any unfairness or discourtesy. I have no desire to claim a priority to which I do not think myself entitled, and I greatly regret that I should have seemed to Dr. Gould to desire such priority.

Respectfully yours,

Henry W. Kilburn

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 11, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,541	446	24.66	18.82	1.69	.58	4.93
Chicago . . .	1,990,750	627	205	25.04	28.39	.31	1.28	—
Philadelphia	1,407,968	599	142	22.20	22.03	1.83	2.00	.17
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	216	52	25.92	16.20	.46	.93	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,906	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	77	18	16.88	27.28	1.30	1.30	—
Boston . . .	617,950	214	40	21.49	19.63	.93	.47	.93
Worcester . .	136,925	42	20	14.28	26.19	—	—	7.14
Fall River . .	119,349	45	24	15.55	42.22	—	—	—
Lowell . . .	104,402	31	6	16.13	19.35	—	—	3.22
Cambridge .	100,998	24	3	12.50	25 00	—	—	—
Lynn	73,875	19	3	10.52	5.26	—	—	—
Lawrence . .	72,348	25	9	8.00	24.00	—	—	—
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	21	3	9.52	23.81	—	—	—
New Bedford	68,863	27	8	11.11	22.22	—	—	—
Holyoke . . .	50,538	17	8	11.76	41.17	—	—	—
Brockton . .	46,601	10	3	20.00	—	—	—	—
Newton . . .	39,310	11	3	—	27.27	—	—	—
Haverhill . .	39,061	11	3	27.27	—	—	—	—
Malden . . .	37,205	14	2	14.28	14.28	—	—	—
Salem	37,188	22	8	18.18	—	9.09	—	—
Chelsea . . .	36,498	13	3	7.70	23.10	—	—	—
Fitchburg . .	36,235	—	—	—	—	—	—	—
Taunton . . .	34,577	15	4	—	26.66	—	—	—
Everett . . .	30,209	10	3	10.00	—	—	10.00	—
North Adams	29,201	5	0	20.00	20.00	—	—	—
Quincy . . .	26,798	11	1	18.18	—	—	—	—
Gloucester .	26,121	6	1	—	—	—	—	—
Waltham . . .	25,796	7	—	—	28.60	—	—	—
Brookline . .	23,576	3	1	—	—	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	—	—
Medford . .	21,956	5	2	—	20.00	—	—	—
Chicopee . .	21,692	7	2	28.60	14.30	—	—	—
Northampton	20,314	7	3	14.30	28.60	14.30	—	—
Beverly . . .	15,867	3	—	33.33	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	7	1	—	14.30	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	3	1	33.33	—	—	—	—
Newburyport	14,478	7	2	—	28.60	—	—	—
Woburn . . .	14,315	6	3	16.67	50.00	—	—	—
Melrose . . .	13,819	6	1	50 00	—	—	—	—
Westfield . .	13,809	4	—	25.00	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	5	3	20.00	20.00	—	—	—
Revere . . .	13,609	5	1	80.00	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,394	—	—	—	—	—	—	—
Southbridge .	11,716	1	1	—	—	—	—	—
Watertown .	11,575	5	0	—	20.00	—	—	—
Weymouth .	11,350	4	0	25.00	25.00	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,738; under five years of age, 1,039; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 845; acute lung diseases 797, consumption 458, scarlet fever 24, whooping cough 16, cerebrospinal meningitis 83, smallpox 8, erysipelas 15, puerperal fever 20, measles 23, typhoid fever 34, diarrheal diseases 93, diphtheria and croup 46.

From whooping cough, New York 5, Chicago 6, Philadelphia 3, Providence 1, Lowell 1. From scarlet fever, New York 19, Chicago 1, Philadelphia 1, Baltimore 1, Boston 1, Melrose 1. From cerebrospinal meningitis, New York 76, Philadelphia 1, Boston 2, Worcester 3, Lowell 1. From smallpox, Chicago 8. From erysipelas, New York 6, Chicago 1, Philadelphia 1, Baltimore 1, Boston 2, and Worcester, Holyoke, Chicopee and Marlboro, 1 each. From typhoid fever, New York 9, Chicago 8, Philadelphia 12, Baltimore 2, Providence 1, Boston 1, Everett 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending March 4, 1905, the death-rate was 17.1. Deaths reported 5,123; acute diseases of the respiratory organs (London) 204, whooping cough 105, diphtheria 86, measles 190, smallpox 1, scarlet fever 34.

The death-rate ranged from 8.4 in Grimsby to 29.7 in Merthyr Tydfil; London 17.1, West Ham 16.8, Brighton 15.2, Southampton 18.6, Plymouth 18.4, Bristol 16.9, Birmingham 16.3, Leicester 17.4, Nottingham 23.4, Birkenhead 13.9, Liverpool 22.0, Wigan 18.1, Bolton 14.1, Manchester 18.4, Salford 18.7, Halifax 12.5, Bradford 17.6, Leeds 14.6, Hull 15.6, Sheffield 15.5, Newcastle-on-Tyne 19.3, Cardiff 15.9, Rhondda 21.3, Hornsey 10.5, Stockton-on-Tees 21.9.

METEOROLOGICAL RECORD.

For the week ending March 11, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Maximum.	Minimum.	Relative humidity. 8.00 A.M.	8.00 P.M.	Daily mean.	Direction of wind. 8.00 A.M.	8.00 P.M.	Velocity of wind. 8.00 A.M.	8.00 P.M.	We'th'r * 8.00 A.M.	8.00 P.M.	Rainfall in inches.
S.. 5	30.20	19	31	19	35	43	38	N W	S W	12	10	O.	O.	0
M.. 6	30.36	11	33	22	47	38	42	N W	N W	16	10	C.	C.	0
T.. 7	30.16	22	40	18	50	76	63	W	S	4	11	O.	O.	.87
W.. 8	29.88	11	41	30	91	100	96	S W	W	8	7	R.	R.	.77
T.. 9	30.00	14	47	33	61	67	64	N W	S	6	12	F.	O.	.24
F.. 10	29.76	13	47	34	93	61	77	N	W	5	13	O.	C.	.14
S.. 11	30.26	30	35	25	51	36	44	W	W	16	17	C.	C.	0
☞	30.13		39	25			61							1.22

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY MEETINGS. — Boston Medical Library Meetings in conjunction with the Suffolk District Branch of The Massachusetts Medical Society. Program of the Meeting of the Section for Surgery to be held Wednesday, April 5, 1905, at 8.15 P. M., at the Library, 8, the Fenway, John Ware Hall. Results in Non-traumatic Surgery of the Brain and Spinal Cord. This subject will include exploratory, palliative and radical operations for intra-cranial and intra-spinal lesions, either objective or functional. Especial efforts will be made to collect the results of cases operated on for abscesses, cysts, tumors, dural adhesions and for epilepsy (either the so-called idiopathic epilepsy or post-traumatic.) Operations for the immediate results of trauma, for meningitis, for hydrocephalus and encephaloceles, etc., will be excluded. Observations on the actual results obtained at the Massachusetts General Hospital up to the present time: James J. Putnam, M. D., and E. A. Codman, M.D. The Results at the Boston City Hospital: Wm. N. Bullard, M.D., and F. B. Lund, M.D. Three cases of Intra-spinal Tumors operated on by Dr. J. C. Warren. Reported by W. B. Odiorne, M.D. The Findings at Autopsy in Cases of Brain Tumor and their Bearing on the Selection of Operable Cases: G. L. Walton, M.D. Discussion, Dr. J. C. Munro *et al.*

APPOINTMENT.

GEORGE V. N. DEARBORN, A.M. (Harvard), M.D., Ph.D. (Columbia), has been elected Professor of Physiology in the Tufts College Medical and Dental Schools.

BOOKS AND PAMPHLETS RECEIVED.

Atlas and Epitome of General Pathologic Histology. By Docent Dr. Hermann Dürck, Authorized Translation from the German, Edited by Ludwig Hektoen, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Gall-Stones and Their Surgical Treatment. By B. G. A. Moynihan, M.S. (Lond.), F.R.C.S. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Manual of Personal Hygiene. Proper Living upon a Physiologic Basis. By American Authors, edited by Walter L. Pyle, A.M., M.D. Second edition, revised and enlarged. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Suggestions as to Postmydriatic Refraction Tests. By George M. Gould, A. M., M.D. Reprint.

Taine's Ill Health. By George M. Gould, M.D. Reprint.

The Life Tragedy of John Addington Symonds. By George M. Gould, M.D. Reprint.

Eyestrain and Civilization. By George M. Gould, A.M., M.D. Reprint.

Original Articles.

THE RESULTS OF MEDICAL TREATMENT OF PEPTIC ULCER AT THE BOSTON CITY HOSPITAL.

BY GEORGE G. SEARS, M.D., BOSTON,
Visiting Physician, Boston City Hospital; Assistant Professor of Clinical Medicine, Harvard University.

A REASON for presenting a brief analysis of the cases which have been under medical treatment at the Boston City Hospital is in part found in the special interest at present accorded to the subject, and in part in a desire to supplement the papers by Greenough and Joslin on gastric ulcer at the Massachusetts General Hospital,[1] and by Lund, Joslin and Murphy on the results of operation upon benign diseases of the stomach there and at the Boston City Hospital.[2]

According to the former, 187 cases of gastric ulcer were admitted to the Massachusetts Hospital between 1888 and 1898, while at the City Hospital only 174 were found who had been under medical treatment since 1876 in spite of the much larger service at the latter institution. By adding 10 others in whom an open peptic ulcer was an accidental autopsy finding, no suspicion of its presence having arisen during life, the total is raised to 184 cases. This marked difference in numbers is to a slight degree accounted for by the probability, since the general index of the latter institution is several years in arrears, that a number of cases were overlooked in the wearisome search through the individual record books, but it may also be another illustration of the recognized but unaccountable peculiarity of geographical distribution of the disease, since one hospital is open to patients who are not residents of Boston, while the other receives but few who live outside the city limits.

The records of the pathological department also show that it is a comparatively rare disease at the City Hospital, as but 29 instances (1.3%) were found among 2,127 autopsies done since 1896, and of these 12 (40%) were located in the duodenum.

At the Massachusetts 157 of the patients were females and 30 were males, while at the City 32 were males and 152 females. Both give a smaller proportion of males than appears to be present elsewhere. Twenty-five (80%) of the 30 males at the City Hospital in whom the age was given, were over thirty, while only 46 (30%) of the 151 females exceeded it, as compared with 63 and 30% respectively at the Massachusetts. Ninety (59%) of the females were between twenty and thirty. The youngest patient was three months, the oldest seventy years, both were females.

A statistical summary of the symptoms presented by the cases would add nothing to our present knowledge of the disease, but it may be recorded that in several instances the most serious accidents, hemorrhage and perforation, occurred without preliminary symptoms which had attracted the attention of the patient. Previous attacks, typical of ulcer, were noted in 35 cases, sometimes in repeated instances.

The results of treatment were as follows: Discharged well, 42; relieved, 105; not relieved, 9; not treated, 1; dead, 27. Only 13 of the latter could be justly attributed to the disease; the others succumbed to some acute or chronic affection having no connection with it, and should not fairly be classed among the unsuccessful cases. Fifteen of those discharged well or relieved are known to have been readmitted with recurrent trouble, of whom one returned begging for operative relief owing to the severity of her sufferings, and four came back with perforation, one of whom recovered after laparotomy. Combining those who returned with more or less serious symptoms with those discharged not relieved or dead, 37 cases (21%) are found in which medical treatment is known to have failed, at least in the first attempt, a proportion which would have been undoubtedly much increased if the present condition of all the patients were known. Hemorrhage was responsible for 6 deaths (3.3%), 4 occurring in women and 2 in men. The age was not given in one, but among the remaining 5 only 1, a woman of twenty-two, was under thirty-three. Death from perforation occurred in 4 cases (2.2%).

The following statistics are quoted for the purpose of comparison. Of 187 cases reported by Greenough and Joslin, 82% were discharged cured or relieved, 8% dead, and 9% under other headings; 3.7% died of hemorrhage, and 2.7% of perforation. Only 40% remained well for an average period of five years. Bramwell[3] gives the mortality among 156 cases in hospital and private practice as 6.2%, 1.2% dying from hemorrhage. Eight cases died from perforation, but as seven when first seen were moribund, the mortality from that cause while under treatment was less than 1%. Eighty-five were subsequently heard from, some after a lapse of several years. Sixty-five were well, 15 were still suffering, one was still under treatment, and four had died, but only one from ulcer. Relapse occurred in 37%.

Schulz[4] gives the combined results in 291 cases from the Breslau Clinic and the New Hamburg General Hospital: 89.4% were discharged cured or relieved; 5.1% were unrelieved, and 5.4% died, giving a total of 10.5% of unsuccessful cases. Three per cent had died from peritonitis, general or local, and 2% from hemorrhage. One hundred and fifty-seven were followed from six months after discharge to many years. At the time of inquiry 53.5% were well, 23.5% were suffering from slight symptoms, and 15.4% from severe, 7.6% had died. Seventeen per cent of those who reported themselves as well, or as having but slight symptoms, had had relapses.

Russell[5] traced the after histories of 47 women who had been treated at the Birmingham Hospital, all but 17 having been followed for four years or more. Two had died, but only one from ulcer; 42.6% were well, but about one third of

them had had relapses. One patient recovered after operation. Forty-four and seven-tenths per cent were still suffering, either from repeated attacks with intervals of freedom, or from continued pain. The condition of 6.4% was doubtful, but they were still dyspeptic.

Wagner [8] followed 25 cases for varying periods, but only 12 for as long as a year. He found that 18 (72%) remained well after intervals of six to twenty-seven months.

Such statistics are of much greater value in estimating the results of medical treatment than those which deal only with its immediate effect, and point to a gradually increasing proportion of failures the longer the cases are followed, which at the end of five years may rise to even 60%. It is not surprising, therefore, that the surgeon, relying on the safety with which abdominal operations may be done, and encouraged by the results obtained in other diseases, which until recently were the exclusive property of the physician, should attempt to secure the success in this field which has been denied to purely medical means.

He has proposed operation as a direct means of cure, to check hemorrhage, to prevent cancerous transformation, to relieve the effects of perforation, and to overcome the mechanical obstruction due to scar tissue, either inside or outside the stomach, produced by the ulcer. The last two considerations lie unquestionably within the province of the surgeon alone and admit of no discussion, but regarding the others opinion is still divided.

Medicine has little to boast of when only about one half of the cases are well after a period of five years, and while surgery is justly proud of its technical skill, since its immediate results in competent hands are almost indentical with the medical, its true value cannot be fixed until it is known whether it brings a larger percentage of permanent cures.

A search through all the available literature of the past few years furnished no evidence on the post-operative history which can be compared in statistical form with the post-medical, as the surgeons, in most instances, seemed more interested in the technique of the operation and in promptly recording their cases than in supplying the only point which would make operation justifiable, the freedom of the patient from a recurrence of symptoms, insufficient time having elapsed before the cases were published. While success attended some cases for a number of months or even years, reports were found of repeated operations, as many as five on the same patient in a few instances, done by capable surgeons without benefit or even with positive harm, and of relapses which have occurred under conditions apparently the most favorable for cure, while the formation of a new ulcer in the jejunum, near the point of anastomosis, has been recorded in at least 18 cases as a direct consequence of the operation. Some of the causes of failure have been eliminated by improvements in technique, but until the best method of operating, which is still under discussion, has been determined, and until more complete statistics have accumulated, it is possible to take only a very conservative view.

Investigations regarding the effect of short circuiting on the functions of the stomach have given varying results. In cases of not too long standing dilatation has been reduced and the fistula seems to have acquired valve-like properties, but hypersecretion and hyperacidity have not always diminished. A persistence or recurrence of previous conditions seems to have contributed to failure after operation, as they have done when cases were medically treated, while the recurrence of relapse, even fatal, when the operation was apparently technically perfect as shown by autopsy in some cases, and the formation of new ulcers, *e. g.*, those near the site of anastomosis, in spite of a normal or subnormal acidity, point to the presence of conditions which the surgeon may not be able to reach.

Surgical reports show that gastro-enterostomy, *per se*, is not a universal panacea for peptic ulcer, and the wide difference between the mortality rate of general hospitals, where each member of the staff contributes a small number of cases, and that of single surgeons does not encourage an indiscriminate resort to operation. They show further, from the inclusion among them of instances where operation was not only needless, as no lesion was found, but even added to the discomfort of the patient, that careful diagnosis is as essential a preliminary to successful surgical, as to successful medical, treatment of gastric affections, unless it is held that chronic dyspeptic symptoms are a certain indication for the use of the knife, a proposition which these cases are sufficient to refute.

While hemorrhage is reckoned among surgical accidents, the difficulty of locating the bleeding point or of employing any direct method of checking it, and the rarity with which it fails to respond to purely medical means, make it a matter of great practical moment when, if at all, active interference should be resorted to. Surgical statistics thus far show a high mortality rate in operations done for this cause, Rodman giving 37.5% and Robson 60%, but in view of the desperate condition of most of the patients it was, perhaps, as satisfactory as could be expected, yet even where the patient successfully survived operation it has frequently proved ineffectual, either in checking the bleeding or in preventing its recurrence, often with a fatal issue.

Körte reports a case where a bleeding ulcer was tied in which death took place nine days later from cutting through of the ligature and renewal of the bleeding, and a second which died from hemorrhage on the twelfth day after a gastro-enterostomy done to cure an ulcer which had not bled for several months. The bleeding came from an eroded branch of the left coronary artery. The operative result, as shown by autopsy, was all that could be desired. Krönlein, at the Thirty-first Congress of German Surgeons, re-

ported two cases who died of continued bleeding after operation. In a patient of Imredy's [7] in whom operation was performed for a narrowed pylorus, a severe hemorrhage took place twenty-one months later, either from the old or a new ulcer, and a similar accident in a case reported by Riis [8] occurred within three months, though the general condition and digestive capacity had improved. Kocher lost two cases, two and twenty-four days after operation, and Kappeler [9] one, six days after operation. A gastro-enterostomy, either anterior or posterior, was done in these cases. Moullin [10] reports two similar cases and speaks of a third, and concluded that gastro-jejunostomy will not stop hemorrhage. Rydygier [11] urges excision of the ulcer owing to the liability of the patient to even fatal hemorrhage after the performance of gastro-enterostomy. Moynihan, in an address before the American Surgical Association, makes the rather conservative statement that in a few cases of hemorrhage, which may be both copious and recurring and threaten the life of the patient, operation may be advised, if so, gastro-enterostomy is the surest means. It is difficult to convince him that any of the surgical procedures (styptics, cautery, ligaturing of a villous patch) has had the smallest effect for good, and in some the bleeding has recurred after the operation and has determined the fatal result. A search for a bleeding point is futile, harmful and, in his judgment, unnecessary. In another place he says that it is difficult to convince himself that surgical interference in some of the successful cases has not been a complication in what wou'd otherwise have been an uneventful recovery, but the last word has not yet been spoken. Some of the German surgeons say that operation is not indicated during or immediately after a hemorrhage.

While the condition of all the ten cases reported by Lund, Joslin and Murphy, in whom an operation for gastric hemorrhage was done at the Boston City and Massachusetts General Hospitals, was desperate and recovery was hardly to be hoped for, the death of seven from subsequent hemorrhage does not furnish encouraging evidence as to the value of surgical intervention in checking it. When the bleeding comes from so large a vessel, as occurred in two of the cases in the Boston City Hospital series, a gastro-enterostomy would have been useless unless the bleeding point had been secured, and in one case, at least, it was so situated that it was not found at autopsy until the stomach was removed from the body. In cases where operation has shown a weeping surface without actual localized points the rest given to the stomach by short circuiting might be of value, but the chances of spontaneous cure under proper medical treatment would seem excellent. It is a different problem when life is threatened by repeated small hemorrhages, which are to be looked upon as a symptom of an ulcer which refuses to heal, and after medical means have failed an appeal to surgical aid seems the only justifiable course.

While cancer shows a special predilection for the stomach, the importance of the part played by ulcer in its etiology is variously estimated. Kollmar, after a critical review of the literature, found but 14 cases which he considered authentic instances of cancerous degeneration, and calls it a very exceptional circumstance, while Zenker believes that almost all carcinomata are secondary to ulcer. The proportion beginning in that way is reckoned at 3% by Häberlin,[12] Fenwick, Plange and Berthold; 4% by Wollmans; 6% by Rosenheim and Hauser; 9% by Lebert and 14% by Sonicksen. Moynihan considers an estimate of 10% as the limit which an examination of between 60 and 70 cases in Leeds would allow. He has personally seen but one in which there was undoubted microscopic evidence of it. Mayo says that there was a history of ulcer in 60% of their malignant cases, but the malignant degeneration may have developed years after the ulcer had healed. Since operation without excision of the ulcer, or the more extensive procedure proposed by Rodman, cannot eradicate the scar which in such cases as Mayo's is supposed to have served as the starting point, and since the complication is apparently not common, the avoidance of this danger can only exert a secondary influence in determining operation.

The following conclusions, for whose general character our present limited knowledge of the end results of surgical treatment must be the excuse, may be formulated:

(1) That the strongest argument so far presented in favor of the surgical over the medical treatment of peptic ulcer is the failure of the latter.

(2) That the danger to the patient from operation in skilled hands is not greatly increased, the immediate results of both medical and surgical treatment being about the same.

(3) That the future interest to the clinician lies, not in hearing of the prowess of the surgeon, recorded in long series of successful operations, but in learning their end results. Until they are known conservatism seems the proper course, but when medical treatment has failed, as shown by the recurrence of repeated small hemorrhages, or the persistence of other symptoms, a resort to operation is legitimate and justifiable.

(4) That the surgical treatment of hemorrhage is of questionable utility, since in many cases it has continued, or first appeared, after operation, and in some, at least, of the successful ones it is doubtful if operation had any influence for good.

(5) That the interests of the patient will be best served, when doubt arises as to the advisability of operation, if the decision is not left to the physician or surgeon alone. Only by their co-operation will it be possible to avoid either the sacrifice of life from unnecessary delay, or the performance of useless or even harmful operations.

REFERENCES.

1 Boston Med. and Surg. Journ., 1899, exli, p. 389.
2 Ibid., Aug. 4, 1904.
3 Clinical Studies, i, p. 297.
4 Grenzgeb., Bd. xi, s. 20.
5 Lancet, Jan. 30, 1904.

[6] München. Med. Woch., 1904, 1 and 2.
[7] Fest. Med. Chir. Presse, 1903, No. 7, *et seq.*
[8] Marseil. Med., 1903, xii, p. 341.
[9] Deut. Zeit. f. Chir., Bd. 49, s. 113.
[10] Brit. Med. Journ., 1903, ii, 984.
[11] Deut. Zeit. f. Chir., Bd. lviii, s. 197.
[12] Quoted by Moynihan, Pract., September, 1904.

ANGIO-NEUROTIC EDEMA: REPORT OF A CASE OPERATED UPON DURING AN ABDOMINAL CRISIS.*

BY FRANCIS B. HARRINGTON, M.D., BOSTON,
Visiting Surgeon to the Massachusetts General Hospital.

Definition. — Angio-neurotic edema is a disease which is characterized by local edematous swellings, more or less limited in extent, and of transient duration. These swellings appear upon various parts of the body, such as face, hands, arms, legs, genitals, buttocks and throat. In several instances patients have died of edema of the glottis.

Associated with the superficial edema are nearly always seen gastric disturbances, — colic, nausea, vomiting, and sometimes diarrhea.

There is a strongly marked hereditary tendency. Several instances of this have been reported, the most remarkable of which is that of Osler who traced the disease to five successive generations of the same family. The disease begins in early childhood and recurs only at rare intervals during the first few years. As the patient grows older the recurrences grow more frequent until attacks are suffered nearly every week. In brief, the above is a rough picture of the disease as described by Osler and other writers.

Etiology. — It is closely allied with several other neurotic disturbances, such as urticaria, purpura, erythema, etc. In fact, in certain patients, the neurosis seems to show itself under various manifestations which are classed as separate diseases, as they appear, according to the symptoms complex.[1]

Angio-neurotic edema is the term which applies in those cases where edema is present. This edema is of sudden onset and usually shows a constant tendency to attack special parts of the body. In some individuals it is characteristic of the disease to start in the fingers, and in others in an eyelid, etc.

The precipitating causes of an attack may include any temporary disturbance of the organism, as indiscretions in diet, exposure to cold, or exertion. It has been shown, however, that the disease has a proclivity to return at definite intervals of less and less duration, whether or not excited by outside influences. Matas has reported a well-known case in which this periodic occurrence was of such regularity that it simulated malaria.

Pathology. — The pathology of the disease is apparently simple. There is supposed to be a sudden great increase in the permeability of the vessels allowing serum to exude into the tissues. There has been but one thorough study of the visceral lesions, which was made by R. S. Morris.[2] In one of his cases the stomach tube, which was used to relieve intractable vomiting, brought up a good-sized piece of the stomach mucosa. Microscopical section of this tissue showed a marked infiltration of all parts of the mucous membrane with edema. There are three previous cases with severe abdominal disturbance in which laparotomies have been performed in angio-neurotic edema, — by Sutherland, Burrows and MacRae, respectively. In the first two, limited areas were discovered in the small intestine which were the seat of moderate-sized extravasations of blood and edema.

Symptoms. — The symptoms may be divided into two general types: the superficial skin manifestations and the various visceral disturbances. The earliest attacks are mild and are limited to swelling of the skin in various regions. A typical attack may begin with itching and redness at the point where the swelling is about to appear. A finger will then suddenly begin to swell until it is so surrounded by splint-like support of edema that it is impossible to flex the joints. The edema may last for a few hours and then subside, or it may extend to the forearm and reach even to the elbow. At its height the swelling is firm and elastic to the touch, and only when it begins to subside can pitting be obtained upon pressure.

For the first few years the manifestations are limited to the skin, when gradually abdominal symptoms become prominent. The abdominal symptoms may be due either to gastric or to intestinal lesions, or to both. Colic, vomiting, diarrhea and occasional passage of blood are the usual symptoms. The pain ordinarily begins in the epigastrium and spreads over the abdomen. It is a generalized pain and does not radiate to the shoulder blade or other diagnostic localities. At first the painful attacks may show themselves once a month and disappear after a few hours and without further disturbances, but later in the disease, nausea and vomiting supervene in each attack. The pain is probably due to interference with the functions of the stomach and intestines by the edematous deposit.

Beside the two broad classes of symptoms just mentioned, there are various deviations from the common type, when more vital organs become affected by the edema. The brain, kidneys, heart may each undergo such an exudation with the serious resulting symptoms which accompany the derangement of vital organs.

The idea of this report, however, is not a comprehensive study of angio-neurotic edema, but to describe a case which was operated upon during an abdominal crisis.

REPORT OF CASE.

M. O., age twenty-six; single; factory girl. She had been in the Massachusetts General Hospital four times, twice in the surgical and twice in the medical services.

The first symptoms which brought her in were strongly suggestive of gallstones, but her subsequent story shows that undoubtedly the condition was an abdominal crisis in angio-neurotic edema.

* Reported at the Clinical Meeting, Massachusetts General Hospital, Dec. 2, 1904.
[1] Osler, Am. Jour. Med. Sciences, 1904, vol. 127, p. 1.
[2] Am. Jour. of Med. Sciences, November, 1904.

The family history is defective as yet, but no other case of edema can be discovered among her relatives.

Previous history. — The first attack came on fifteen years ago. The swelling came in the hands and the feet where it was closely confined. As usual no pain accompanied the skin lesions. She has been having these attacks ever since at decreasing intervals, the longest periods of freedom being three months. During the last few years, however, she has never passed more than two weeks without undergoing an attack. At present the swellings are no longer confined to the hands, but extend up to the elbows, though in the feet the edema never reaches above the ankle. Her face is less frequently affected, but now and then is deeply edematous from the eyes downward, even to the clavicle. The face looks round at such times, the lips are large, and eating is attended with great difficulty, while swallowing liquids causes nausea. She has never yet been dyspneic. The head swelling reaches its height in about one day, the lips puff up quickly and remain so for four or five days. In this disease the edema acts exactly as it does under other circumstances, *i. e.*, the exudation comes rapidly in tissues, which are loosely constructed, as the lips, while in denser tissues like the fingers and the toes, the swelling has a comparatively gradual onset and a more rapid subsidence.

Besides the regions mentioned above, the patient has noted swelling over the scapulæ, buttocks, and in the breasts. The abdominal pain is not well defined, but extends across the lower half of the abdomen without radiating into the back or the shoulder. Such attacks usually persist for twenty-four hours and are also marked by nausea, vomiting and headaches. The vomit is liquid and green, never bloody, and one to two quarts at a time. She has never been jaundiced, but is constantly troubled with gas and distress after meals. Her bowels are regular, never bloody.

The urine during an abdominal attack shows the following:

Color, normal; reaction; acid; sp. gr., 1,022; alb., slight trace; sediment, rare hyaline cast.

The stomach contents after test meal:

Free hydrochloric acid, .01%; total acidity, .018%; no lactic acid, few Boas bacilli and yeast spores; stomach capacity, 44 oz.

After consultation with Dr. H. F. Vickery, who had made a diagnosis of angio-neurotic edema, it was decided that exploratory operation was justifiable because of the duration and the severity of the abdominal symptoms. The patient was informed that no definite lesion might be found as no definite diagnosis of the abdominal symptoms had been made. She gladly accepted the suggestion of abdominal exploration.

On Oct. 28, 1904, the patient was operated upon by me during an attack of abdominal colic. The stomach walls and each abdominal organ were carefully examined, but nothing explanatory could be discovered, except the intestinal condition. There was a good amount of clear free fluid among the intestines and filling the pelvis. The intestines themselves were engorged with blood, and so red that a mild peritonitis was at first suspected. There were no hemorrhagic areas in the intestinal walls, but at a point within a short distance of the ileo-cecal valve, a cylindrical enlargement of the ileum 2½ inches long was brought to light which entirely surrounded the gut, increasing the bowel circumference to twice its ordinary size. The swelling was evidently in the bowel wall, elastic to touch and did not pit upon pressure. It can be easily understood how such an infiltration could derange peristaltic action of the intestine. The lower border of the stomach was about half an inch below the umbilicus, and the pylorus admitted the tip of the index finger. The appendix seemed somewhat thickened and was removed, but at examination it was found to be normal. The engorgement of the intestines and the free fluid were explained by the violent peristalsis brought on in the effort to force down the lesion which was actually in the intestinal wall. There was no distention above the lesion since the finger could be easily passed into the swelling at either end.

She had a comfortable convalescence, though some colic attended the first movement of the bowels after operation. An attack of skin swelling came on before her discharge, but otherwise she has not suffered any unpleasant sequelæ.

Osler has written most instructively on this subject. In the *American Journal of the Medical Sciences*, May, 1904, "On the Surgical Importance of the Visceral Crises in the Erythema Group of the Skin Diseases," he says, "The possibility of mistaking these visceral crises for appendicitis or intussception or obstruction of the bowel, and handing the patient over to the surgeon for operation, is by no means remote." He relates three cases which were operated upon, and says "The practical lessons to be drawn from these three cases in which laparotomy was performed are first, that with children with colic the greatest care should be taken to get a full history, which may bring out the fact of previous attacks, either of the skin lesions, of arthritis, or of intestinal crises; and secondly, to make the most careful inspection of the skin for angio-neurotic edema, purpura, or erythema."

OBSERVATIONS ON PNEUMONIA WITH A REPORT OF TWO FATAL CASES OF EXTRA-PULMONARY SUPPURATION. SUGGESTIONS FOR TREATMENT.*

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As tending to illustrate some of the complications of pneumonia, I present a very brief report of the two following cases:

W. W., age forty-eight, married, of slight build and nervous temperament, born in England; a house painter. Was admitted to my service at Mercy Hospital Feb. 17, 1903. History negative, urine negative. Illness began four days previously with chill; pain in nipple region, right side. On examination he was found to be suffering with pneumonia of the lower lobe, which ended by crisis six days later. About this time a discharge from both ears was noticed, most profuse on right side; complained of pain on pressure over the mastoid and soon became delirious, though from crisis he had been perfectly clear and normal in his mentality. I called attention of specialists, who attended him daily, but on account of free drainage thought no operative interference indicated. His condition grew steadily worse and three days before death a painful swelling appeared over the sterno-cleidomastoid on right side. Death occurred March 19, or one month and two days after his admission. Autopsy performed by Dr. E. H. Guild eight hours after death. The mastoid cells were infiltrated with pus, the dura immediately superjacent was intensely congested and oozing

* Read before the Hampden District Medical Society, October, 1904.

blood, the sternomastoid in the middle third was reduced to almost a bag of pus, and from the abscess the pus had burrowed a passage through the center of the muscle to its points of attachment. The only micro-organism isolated from the pus was the staphylococcus.

CASE II. T. J., age fifty-one, single, born in England, actor. Admitted to Mercy Hospital, March 19, 1902, with lobar pneumonia. Father died of tuberculosis; mother of fever. He had nervous prostration and indigestion three years previously. Illness was ushered in by chill on the 14th of March, which was repeated on the 15th and 16th. Cough, expectoration of "brick dust sputum"; pain on right side, temperature on admission 101° F., pulse 110, respirations 30 per minute. On fifth morning after admission temperature 101.5° F., pulse 120, respirations 50. On the evening of this day occurred the crisis, temperature going below a hundred, pulse 100, respirations to 30, and he seemed assured of a speedy and happy convalescence. He began to complain of pain over parotid gland, which became red and swollen, and three days later fluctuation being discovered an opening was made by Dr. L. A. Prefontaine for the evacuation of the pus. However, notwithstanding free stimulation he died. No autopsy obtainable. C. J. Aldrich, J. E. Tally and T. C. Morris have each reported one case, that of the last being fatal, Dr. J. M. Miller reported two cases ending in death. These, with the one here reported make six cases of parotitis complicating pneumonia, four of which were fatal.

To any reflecting physician the question must frequently occur, What is pneumonia? Is it, like smallpox, malaria or syphilis, a definite entity or a complexus of symptoms, ever varying with its etiological factors, their kind, quantity and virulence, as well as the organic resistance of the individual? In other words, is pneumonia a general fever with local lesions in the lungs, or a local inflammation, having a symptomatic or inflammatory fever, — the lung fever of the older writers? Is it invariably the result of diplococcic infection, or may it result from infection by one or more other micro-organisms? The pendulum of medical opinion has, of late years, swung towards the idea that it is a general disease. There are, however, many of our most careful and accurate observers who do not subscribe to this belief. On the contrary, they, like L. Becho and others, stoutly maintain that pneumonia is usually a local disease. Like many other local processes, it may, under certain circumstances, become a general bacillemia, or septicemia, or remain, as it frequently does, to the end, a local disease. Granting for the sake of argument, that it is usually a general infection, it seems pertinent to ask what of the atypical cases? What of the typhoid fevers with consolidated lungs or a pleuritis? Of the pneumonias having other causation than Frankel's pneumococcus; of the pneumonias without lung consolidation, and having as lesions a septicemia, an endo- or peri-carditis, a suppurating knee joint, or a terminal meningitis? What of the traumatic pneumonias, cases of which have been reported by Bloch, Aufrecht, Pezerat, and others, and where we have no way of explaining their existence, but by reduced resistance and latent microbism? You will remember how important was the rôle assigned by the older writers to cold in the causation of pneumonia. In this, as in many things, we may profitably emulate the astuteness of our predecessors, for, notwithstanding the discovery of the etiological relations of the micrococcus lanceolatus, cold still maintains an intimate and important relationship causal to pneumonia. This it accomplishes in the same manner as does traumatism, namely, by reducing the organic resistance, local or general, thus giving an opportunity to the micro-organisms leading a latent and harmless existence in the upper air passages, to extend the field of their activities unmolested by organic resistance. Wells thinks cold acts by causing a paretic state of the laryngeal and bronchial reflexes, permitting aspiration of pneumococcus-laden particles of mucus and other fluids from the upper respiratory passages to the lungs, — another way of expressing the same idea. A study of large numbers of autopsy records would, undoubtedly, establish the fact that in a great majority of cases pneumonia is a general fever, caused by the micrococcus of Frankel. In a respectable minority, however, it is, from the beginning to the end, a local inflammation of the lungs of varying causation. These local cases are more frequently met with than may be supposed, for they do not usually come to autopsy.

To make these facts more impressive, let me remind you that cases of pneumonia have been reported, having for their causation one or more of the following micro-organisms, singly or in association: pneumococcus, pneumobacillus, Klebs, Lœffler, Pfeiffers influenza, typhoid, the colon bacilli and the strepto- and staphylo-coccus. Per contra, the diplococcus has figured in the causation of pneumonia, bronchitis, pleuritis, peritonitis, appendicitis, endo- and peri-carditis, keratitis, cellutitis, meningitis, arthritis and others. I may mention in passing, that "six or more papers have been published on micrococcic arthritis during the past eighteen months." These infectious joint lesions, whether resulting from the diplococcus, influenza bacillus, typhoid bacillus or the pus cocci, would seem to mark the passing of inflammatory rheumatism as an entity, and also of uric acid and lithemia, as its prime etiologic factors. Do not understand me as intimating that all this formidable list of diseases were primary, for, indeed, they were mostly secondary, though Cole has reported a case of primary pneumococcic arthritis, no pulmonary inflammation being present. Others have made similar reports on this, and other diseases, but space would not permit of their reproduction here. It must be admitted that failure to find other organisms in any case constitutes only negative evidence of their non-existence, for they may have been present at some other period of the disease. We are assured, however, that careful search was made, and none others found than those reported That it may be more readily apparent how pneumonia may in the one case remain to the end a local disease, and in the other become a general infection of varying intensity,

I shall mention briefly a few points in the anatomy of the lung. The lung consists of an aggregation of lobules, each being a miniature lung, having its own artery and vein. These vessels have no anastomosis, and the lobules have no communication with each other. These lobules consist of microscopic air cells and intercellular passages or air sacs, having a diameter of 1-200 to 1-70 of an inch. They are connected with the air by means of bronchioles, having a diameter of 1-50 to 1-30 of an inch. They are bound together by a very delicate cellular membrane, the intervesicular and intercellular membrane. The pulmonary capillaries ramify upon the walls of the air cells and intercellular passages, under the epithelium or mucous membrane of which are lymph vessels, communicating with glands and with the pleura. This isolation of the lobules makes it easy for one or more of them to be shut off from the air on the one side and the circulation on the other. For example, a dose of virulent micro-organisms is inhaled, and finds lodgement in one or more adjacent lobules, an inflammation is lighted up, the irritated bronchi pour out an extra quantity of mucus, fibrin and cells. The nature of the infection, the fever, the more easy absorption of the more liquid portion, or some unknown agency, causes an increase in the viscidity of the exudate to such a degree that it cannot be expectorated, and the lumen of the tube is occluded. As a consequence of this all air, and with it all danger of additional infection from the upper air passages, are excluded. Going *pari passu* with this, an exudation is being poured out by the blood vessels into the vesicular and intervesicular portion of the lobules of fibrin, red and white cells, and liquor *puris*. This exudation augmented by the exfoliated epithelial cells of the parts distends the air cells and alveolar passages to such an extent that they in turn press upon the blood and lymph vessels, causing stasis and ending with more or less clotting of the contained blood. Resulting from these processses, this portion of the lung is completely shut off from the circulation on the one side and from the air on the other.

The contained micro-organisms cannot receive fresh accessions from without, and cannot themselves escape into the blood, so we have, to all intents and purposes, a local inflammation, pure and simple. Such are our light, our abortive pneumonias. When the inflammation has subsided we usually find the micro-organisms dead and the exudate sterile. When this imprisonment does not take place with sufficient promptness and completeness, some escape by way of the blood vessels or lymphatics, and indeed this is what usually obtains. We have then an extension of the inflammation, a greater or less degree of toxemia, a more prolonged illness, in short, a general disease. In still other cases, where either by reason of the more complete failure of imprisonment, larger dosage, excessive virulence or low resisting power on the part of the patient, one or all, the infection becomes so rapidly disseminated and so overwhelming that we have a severe and, probably, fatal toxemia. It frequently happens in such cases, that the infecting micro-organisms escape into the circulation so rapidly that, in their passage through the lungs, they inflict no injury, but exert their work of destruction upon the blood and upon any organ or part where they find lessened local resistance. Thus may be rationally explained the variations in the intensity, extent and duration of pneumonia. Thus, also, is shown the fallacy of drawing conclusions as to the results of any plan of treatment in a limited number of cases.

It is much to be regretted that our ability to treat it successfully has not kept pace with our greater knowledge of its etiology, and our better conception of its pathology. However, the reasons for this are neither so far to seek, nor so strange as they might seem at first thought. It should be remembered that all the micro-organisms entering into causal relations with pneumonia produce, as the result of their activities, the same toxemia, the same septic conditions, and the same serous, purulent or fibrinous exudates. Finally, they attack the same organs and parts, giving us by their symptomology but little ground for their differentiation.

A few words on the presence of the pneumococcus in the blood, and its significance in pneumonia in this connection may prove interesting. In a study of 229 cases, by various observers, it was found that 99 times, being 43+% several others have obtained the pneumococcus in the blood in lobar pneumonia, some like Prochaska in nearly all cases; most like Cole in 30% of cases. All of the nine out of the 30 cases in which Cole found the pneumococcus ended fatally, and the micro-organism was found only during short periods before death, — three days to seven hours. Sylvestrini, Sertoli and Baduel have frequently found this micro-organism in the blood, and are in substantial agreement that, if numerous, they indicate a grave infection, and frequently a fatal termination. Pani thinks their presence an indication of the imminence of death. F. W. White considers their presence in the blood, in most cases, gives a very unfavorable prognosis. On the other hand, Berghius finds them inconstant in the blood, but when found they do not add to the gravity of the prognosis.

Without going more deeply into this subject, but having due regard for the authors quoted, as well as many others consulted, and also as the result of my own reflections on the subject, I feel justified in concluding that the presence of the diplococcus in the blood gives evidence of the failure of their isolation in the lungs. Had their imprisonment been successful, they would not have escaped into the blood, at least not in large numbers. So, too, as the first battle of the leucocytes takes place principally in the infected lung, the appearance of the pneumococci in the blood indicates that the leucocytes were worsted, and hence we are not to have an abortive pneumonia, but an illness of some duration and grav-

ity. Their appearance also is evidence of an individual resistance not of the highest order. If they appear in large numbers, and of great virulence, especially, if late in the disease, we may expect an overwhelming toxemia, and probably a fatal ending, as there is either a new accession, or the complete breakdown of organic resistance. If finding more than one kind of germ at the same time, symbiosis, the one frequently increases the virulence of the other, and increases the gravity of the prognosis.

Leucocytosis. — Its importance in the prognosis of pneumonia: Leucocytosis may be taken as the measure of the resistance which the healthy organism offers to a recent attack, or invasion of micro-organisms, and also as an expression of the disturbance caused by their activities, which activities are represented usually by the height of the fever. In pneumonia, leucocytosis is present in all but very slight attacks, virtually local ones, where, as in the aged, the debilitated and those suffering from chronic disease, the resistance is very feeble and inefficient. It may be absent in certain blood states, as leukemia, and in cases where a leucocytosis has been but recently present, and where, by reason of an overwhelming dose and virulence of the attack, the organic resistance is paralyzed. It seems unnecessary for me to cite any authorities on this subject, for all concede the presence of this phenomenon in pneumonia. So true is this, that taken with the diminishing chlorides in the urine one could almost diagnose pneumonia without seeing the patient. Therefore, the only question for discussion is its proper interpretation. Limbeck first noted the fall in the number of leucocytes at or just before the crisis, and the absence of this phenomenon in pseudo-crisis. He drew the important deduction that leucocytes precedes and is part of the inflammatory exudate, whether interstitial or pleuritic, and that non-exudative diseases are not accompanied by this phenomenon. It appears very early in the course of pneumonia, simultaneously with the chill, having been repeatedly observed on the first day of the disease. Indeed, 25,000 have been counted within four hours after the chill. The maximum increase is, according to Hayem, Klein and Biegansky, found just before the crisis. In fatal cases there is often a continuous increase, but this must be due in my opinion to new accessions of the infecting germs. It is on this principle I would explain the fatal cases with high leucocytosis reported by Dr. C. F. Withington. Sometimes they are high at first, but steadily diminish as the patient grows worse. In many fatal cases there is no leucocytosis. Rapid extension of the inflammation, by involving more lung tissue, complications and amount of the exudation also contribute to the variations in leucocytosis. We may conclude, therefore, as follows:

(1) Cases of low leucocytic count ending in recovery may be explained by assuming the imprisonment of the micro-organisms as before mentioned, the disease remaining virtually a local process.

(2) Absence of leucocytosis in the early period of a severe attack speaks for large dosage of virulent micrococci overwhelming the resistance or, of vitiated constitution, lowered resistance, and is of unfavorable prognosis.

I cannot conclude this paper without a few remarks on treatment, premising that I have neither the time nor inclination to enter into the details nor to discuss all the methods proposed.

On perusal of most of the recent papers on lobar pneumonia the surprising thing to me is that so little attention is given to the treatment of the congestive stage. For it is in this stage, if in any, that we may hope to accomplish results. From the old reducing or anti-phlogistic treatment of tartar emetic, mercury and bleeding, I fear we have gone to the opposite extreme of digitalis, ammonia and whiskey,— one fully as pernicious as the other; and regarding the first or congestive stage, the latter is much more reprehensible. What physician here on being called to a case of congestion of any kind, unless it be the passive congestion of old age or debility, would ignore counterirritation and depressants? But this is actually what most are doing with reference to pneumonia. In this matter of counterirritation in pneumonia the textbooks are sadly out of tune, one advising their use in the stage of resolution and thinking them of no use in the primary stage. The other recommending them for the pleuritic pain only, whereas, their rational use is like cupping and leeching for their derivative effect, to draw blood to the superficial arterioles and capillaries, the object being relief to the over-filled pulmonary capillaries. Be it remembered that the congestion of the first stage of pneumonia is very different from the congestion accompanying the edema usually present in the two remaining stages,— the one being the active congestion that precedes and accompanies all inflammations; the other is passive and due to obstruction to the return blood to an over-full heart, and to loss of the propelling power of the lung by reason of its loss of elasticity. Whatever justification there may be for stimulation in the latter condition it is perfectly indefensible in the former. Let me impress upon you, then, with all the earnestness I posesss, do not use digitalis or stimulants in the first stage of pneumonia. I say this with the full knowledge of and notwithstanding the methods and claims of Petresco and his followers, and of the supposed germicidal effects on the pneumococcus ascribed to digitalis by Maragliano. The first stage is where our closest attention and active treatment are not only justifiable, but demanded.

Appreciating the lowered arterial tension in pneumonia, a choice of two methods of treatment presents itself. The one homeopathic to the existing vascular condition, and consisting of veratrium, aconite, and I may include the too frequently discarded blood letting, tartar emetic and mercury; for the last three, though the old standard remedies of the so-called allopaths are really homeopathic to the existing condition, for they still further reduce the vascular tension. On the

other hand, treating it allopathically, we have digitalis, alcohol and ammonia which increase arterial tension. My preference is most decidedly for the former. Taking, then, into consideration, the condition, habits and age of our patient, and assuming that we are called at a sufficiently early period of the attack, our treatment should be as follows:

NEW METHOD OF TREATMENT.

During my service at the hospital it has for some years been my custom in treating unilateral pneumonias to give virtually no medicine. The patients are instructed to lie, not on the affected side as they are prone to do, but by means of pillows they are supported, and kept on the side of the sound lung, thus favoring the emptying of the vessels of the lung by means of gravitation, while ice is applied to the affected side. This idea is original with myself, and the results seem to justify its adoption, though the number of cases is too small to serve as a basis for any positive conclusions.[1] The medicinal treatment, especially the first stage, should consist of: (1) One active purge; (2) wet or dry cups or leeches; (3) free use, all over affected lung, of as strong counter-irritants as can be comfortably borne; (4) veratrum viride to bleed the lungs into the abdominal and general capillaries, or the direct abstraction of blood from a vein followed, if need be, by infusion. For the remainder of the disease we are virtually powerless.

There may be a moment when a dose of digitalis, ammonia or whiskey may do good, but I have not been able to find it, and most assuredly it is not before the latter part of the second or third stage; a few doses of morphine may be indispensable in pleuro-pneumonia. Plenty of fresh air should be admitted, but the body covering should be sufficient to promote perspiration and dilatation of the superficial capillaries.

In conclusion I would say there is one thing we owe to ourselves, to our profession, and our patient, that, after adopting a plan of treatment we pursue it fearlessly to the end, so that our observations will have some value in teaching us to exercise charity in forming a judgment on the results of our confrères, and that we ourselves and our professional brethren may profit by the results of our good work.

ECLAMPSIA.

BY WARREN R. GILMAN, M.D., WORCESTER, MASS.

ECLAMPSIA does not occur often, — about once in one hundred and twenty-five cases, — but it is so serious and dangerous a complication that discussion of its cause is always in order. This has been an interesting field for speculation and scientific investigation for many years; and, while we have a clearer view of the matter than was possible twenty years ago, we are still far from a complete understanding of it. I wish to review briefly the prominent theories as to the causation of eclampsia which have been held in the past, and to state what seems to be the best working theory at the present time.

The pathological changes which take place are now quite clearly recognized and we are able to state what is likely to be found at the post-mortem examination of any case of eclampsia. The prominent and almost constant findings are as follows: Changes in the kidneys varying between an acute nephritis with necrosis of renal epithelium, and a moderate parenchymatous degeneration. In the liver, multiple hemorrhages, small areas of necrosis and thrombi in the portal veins. In the heart, parenchymatous degeneration. In the brain, punctate hemorrhages and points of necrosis about thrombi in the vessels.

The symptoms of eclampsia and the results of urinary analysis very naturally led to the conclusion that the disease was an acute inflammation of the kidneys; and for many years this was the accepted belief. When important and constant changes in other organs were demonstrated, it became evident that the disease was something more than a nephritis, and that the changes in the kidneys were only a part of its manifestations.

The areas of necrosis in the liver are found so constantly that it is plain they also are a part of the morbid process. These hepatic lesions are not found in ordinary cases of nephritis; indeed, they are so characteristic of eclampsia that many observers have believed them to be the cause of eclampsia. It is more reasonable to look upon the changes both in liver and kidneys as the manifestations of a disease whose actual cause is not yet demonstrated.

Convulsions, which are the most prominent symptom of eclampsia, have suggested that the cause of the disease is some affection of the nervous system. It is a well-recognized fact that the nervous system of the pregnant woman is much more irritable or unstable than normal. This is also true of many animals, having been demonstrated by experiment. Anemia of the brain was at one time suggested as the cause of the trouble, but this condition is not often found at autopsy. Helm[1] thinks the disease the result of an increased cerebrospinal tension. He cites one case which recovered after the removal of a small amount of fluid by lumbar puncture. Henkel[2] used lumbar puncture in sixteen cases. Four cases died. There are well-marked and quite constant changes in the brain; but no affection of the nervous system would also account for the changes found in the liver, kidneys and heart.

The observation that eclampsia occurs more frequently in cases of hydramnios and multiple pregnancy suggested the theory that the disease was caused by pressure upon the kidneys and ureters. The pathological changes do not support this theory, however; and the pressure symptoms noted in other kinds of intra-abdominal tumors do not resemble the symptoms of eclampsia.

[1] Time and space would not permit of my going into the physical and physiological reasons in all their details on this occasion.

[1] British Medical Journal, May, 1903.
[2] Zentralblatt für Gynaecologie, Nov. 12, 1904.

When it was proved that bacteria played an important rôle in the causation of many diseases, their relation to eclampsia was investigated with great care, and it was hoped that at last the real cause of the disease was to be demonstrated. It was suggested that there was an infection originating in the uterus; that bacteria gained admission to the uterus and thence invaded the system. The pressure of the growing ovum upon the uterine wall facilitated absorption of the bacteria; when the uterus was emptied and pressure removed, absorption no longer took place. Careful work by competent men who have tried to demonstrate bacteria in the blood, urine and tissues of eclamptics has been negative in result up to the present time.

Recent work shows that the freezing point of the blood and urine of eclamptics is the same as that of normal women. It has also been proved that the blood does not coagulate more readily than normal; this refutes the theory that the thrombi found in various organs are due to increased coagulability of the blood.

The theory that eclampsia is caused by a poison generated within the body was first advanced about 1888. Experiments upon animals seemed to show that the blood and urine of eclamptics were poisonous; and the theory of auto-intoxication was strongly supported. It was claimed finally that the blood of an eclamptic was much more poisonous than the urine, because of the retention of the poison in the blood. In normal pregnancy, the poison being excreted in the urine, it was found that the urine was more toxic than the blood. Investigations continued through a number of years raised doubts as to the truth of the early conclusion, and the results of experiments did not agree. Within a few years Stewart and others have shown that the toxic effect produced by the injection of urine and blood is due to bacteria which gain admission at some step of the experiment. They find that sterile urine and blood may be injected with impunity. Various products of metabolism — urea, ammonia, carbamic acid, acetone — have been held to be the cause of eclampsia. Each one in turn has been investigated, and the verdict is that no single one of them is the sole cause. Zweifel,[3] in recent investigation of the whole subject, concludes that the cause of eclampsia is some organic acid capable of oxygenation and readily changeable into various compounds. He finds lactic acid to be poisonous, and says it is not formed in the metabolism of a healthy person. He thinks the infrequency of eclampsia in certain parts of Germany may be explained by the fact that in these districts the people drink freely of wines containing tartrate of sodium and potassium, which prevent the formation of lactic acid. We know that lactic acid is often found in the stomachs of patients suffering from a well-defined variety of dyspepsia. It is not a product of normal digestion or metabolism, but it is very doubtful if it can be shown to be the cause of the eclampsia of pregnancy.

[3] Reported in American Journal Medical Sciences, August, 1904.

Removal or death of the fetus has a favorable, often a curative, effect upon eclampsia. In view of this fact, many men have sought the cause of eclampsia in the placenta and fetus. The syncytial cells which are often found in the pulmonary and hepatic capillaries were regarded as a possible factor. But these cells are found also in normal cases, and for that reason are probably of no significance. It has been suggested that the toxemia results from the inability of the mother to eliminate the products of metabolism, both of her own organism and of the fetus. Some writers have claimed that the intoxication begins in the fetus and secondarily affects the mother. Pathological changes in the fetal organs, similar to those found in the mother, have been demonstrated frequently. These observations seem to show that both mother and fetus suffer from the same disease, but prove nothing as to its cause or origin. Bandler advances the theory that the placenta is a gland which throws out a poison through the syncytial cells. The effect of the poison is inhibited by the action of the ovaries. When, for any reason, the ovaries are incompetent, the poison takes effect and produces eclampsia.

During the past two years the function of the thyroid gland in relation to pregnancy has been under careful observation. It has been known for many years that the gland enlarges in a certain number of cases during pregnancy, and statements to that effect are found in textbooks. Now that it is suspected that the functional activity of the gland may play an important rôle in maintaining health during pregnancy, we find it stated that the gland is usually enlarged at this time and that its activity is increased. We know that cretinism and myxedema result from loss of function of the gland, and that similar conditions sometimes follow destructive operations on the gland. The fact that the gland takes on an increased activity during pregnancy is looked upon as an indication that an increased amount of iodothyrin is needed at this time to maintain health. A few experiments on cats seem to show that destruction of the gland is followed by eclampsia when pregnancy occurs. Hergott has reported a case of labor with eclampsia in a cretin.

Nicholson says: "It is evident that the real significance of the pre-eclamptic stage is that it points to a breakdown of some part of the defensive mechanism. Furthermore, this breakdown is the result of some inadequacy of the thyroid gland or parathyroid glands whereby the process of nitrogenous metabolism, instead of resulting in the formation of urea, ceases with the production of intermediate substances which, when absorbed, excite the symptoms of toxemia. In this way the degree of toxemia of pregnancy comes to be dependent directly or indirectly upon the quality or quantity of its thyroid secretion. The thyroid gland may, therefore, be given a primary rôle in the causation of eclampsia." In twenty-five cases of eclampsia, Lang finds no enlargement of the thyroid in twenty. Linn

reports two cases of threatened eclampsia treated with thyroid extract. In one case there was an increase of urine and urea, with no convulsions. In the other case no improvement was noted. Sturmer had a mortality of 12% in 41 cases of eclampsia treated with thyroid extract; the mortality in 369 cases not treated with the extract was 28%. Since he also used morphia and saline infusions in the series of 41 cases, we cannot feel sure that the good result was due entirely to the thyroid extract. Hergott grants that thyroid inefficiency may be the cause of eclampsia in some cases. Thomson [4] suggests that the parathyroids may be the important part of the gland, and that they, rather than the thyroid itself, secrete an antitoxin for poisons generated in the gastro-intestinal canal. Gley suggests that the parathyroids are of more importance than the thyroid proper in relation to eclampsia.

The theory that an increased activity of the thyroid gland is needed in pregnancy is based upon the assumption that there is some toxin in the circulation whose action is to be inhibited. Although we are unable to name the specific cause of eclampsia, it is plain that the investigations of the past twenty years have cleared up the matter to a considerable extent; and we are able to say that eclampsia is due to the presence in the body of substances resulting from faulty nitrogenous metabolism. The eliminative organs are unable to dispose of them, and the ductless glands, whose secretions may be to some extent an antitoxin, are also unequal to the increased demand upon their activity. It is plain that a less pronounced degree of toxemia exists in a large number of cases which never reach the eclamptic stage. In these cases it is fair to assume that the eliminative organs and the ductless glands have been able to counteract in some degree the toxic substances. The matter of nitrogenous metabolism has been studied by Chittenden; and the results of his experiments upon healthy men which he has recently published are of great value. Fats and carbohydrates, when oxidized in the body, form products which are harmless and easily eliminated. The amount of nitrogenous food eaten by the average man or woman is far in excess of what is needed. The result is incomplete metabolism and auto-intoxication by the halfway products like ammonium carbamate. The pregnant woman is apparently more easily affected by these poisons, and it is probable, also, that the ability to completely digest nitrogenous food is somewhat impaired.

The question which most interests the practicing physician is how to recognize toxemia early and prevent its development into eclampsia. Unfortunately, there is no single symptom or test which may be relied upon. Careful observation of the patient's health and examination of the urine during the latter half of pregnancy are necessary if he wishes complete assurance of safety. The subjective symptoms — indigestion, headache, nausea, disturbance of vision, mental lassitude — are of the greatest importance as signs of toxemia. Zeal in making tests of the urine should never lead one to omit the older and equally important matter of keeping these symptoms under observation. It may be possible, but it rarely happens, that a patient actually comes to the eclamptic stage without giving warning through such symptoms.

The condition of the urine is certainly one of the best indications of how thoroughly nitrogenous metabolism is being carried out; but there is some uncertainty among practitioners as to what sort of an examination of the urine is demanded, and how often it should be made. Little [5] says that reports of many writers show that eclampsia sometimes occurs when albumin has not been found in the urine; and also that albumin is present in many cases which never develop any symptoms of eclampsia. He, himself, finds albumin in 40% of all pregnant women. This is in agreement with observations of other men; and it is certain that the mere presence of albumin, especially in small amount, is not an indication that eclampsia is imminent. It may well be an indication of a slight degree of toxemia. It is not safe to conclude that eclampsia cannot occur because no albumin is found, and again, one need not expect eclampsia whenever a small amount is found. But I believe that the presence of a considerable amount is always a sign of danger. There is no doubt that eclampsia sometimes occurs when the urine has been free from albumin up to a few days before the attack; but it is my impression that albumin is always present at the time convulsions occur.

The results of urinary analysis in a large number of cases show that the excretion of urea is diminished, as a rule, in eclampsia; and it is generally believed that the degree of toxemia corresponds with the diminution of urea excreted in twenty-four hours. If we accept the theory that the toxemia of pregnancy is the result of faulty nitrogenous metabolism, we expect to find a diminution of urea. This expectation is realized in a large proportion of cases, and we come to the conclusion that the quantitative test for urea is of great importance. John Cooke Hirst [6] dissents from the popular belief in the great importance of the urea test. He thinks the amount of albumin present in the urine a better guide. He says he has many times seen eclampsia develop when the amount of urea was not in the least diminished, and has seen women whose excretion of urea was far below the normal mark go through a normal pregnancy and labor. Edsall [7] says the amount of urea excreted in normal cases varies very much. He calls attention to the importance of considering the amount of nitrogen ingested, before drawing conclusions. Chittenden's experiments prove the wisdom of this observation. Zweifel finds albumin increased in proportion to the diminution of urea. The large majority of men believe that the diminu-

[4] New York Medical Journal, Nov. 19, 1904.

[5] Journal of Obstetrics, September, 1904.

[6] American Medicine, May 3, 1903.

[7] Journal of Obstetrics, July, 1903.

tion of urea is a sign of danger and is closely related to the cause of eclampsia. Granting that neither the test for albumin nor the quantitative test for urea is, by itself, a safe guide, we can say that both tests, together with the subjective symptoms of the woman, enable us to tell whether toxemia is present; and, if present, to estimate quite accurately its severity. Beside these important tests there are two others, each of which may give a little additional information as to the patient's condition.

The blood pressure rises as the toxemia increases, and is high in all cases of threatened eclampsia.

Lobenstine [8] finds an average leucocyte count of 10,600 in fifty normal cases in the ninth month of pregnancy. In fourteen cases of eclampsia, the count varied between 16,000 and 50,000 on day of delivery. He believes the leucocytosis is caused by the toxemia and is more marked as eclampsia threatens.

In a hospital ward it is possible to make frequent examinations of the urine, and to observe symptoms; but in private practice it is impossible to give every patient such careful attention. The man who has a large obstetric practice among women who pay small fees has a difficult problem to solve. Fortunate, indeed, it is that eclampsia occurs in so small a number of cases. The importance of furnishing a specimen of urine for examination, and of reporting symptoms at stated times should be impressed upon every patient; then the patient who fails to report herself as directed is responsible for the physician's ignorance of her condition.

The specimen of urine sent for examination should be accompanied by a statement of the amount of urine passed in twenty-four hours. The albumin test is simple and satisfactory. The quantitative test for urea is not simple and is not made as a routine practice by most men. I doubt if it will ever be so made. I believe that an estimate of the total solids excreted in twenty-four hours is fully as valuable as the urea test, and may be substituted for it. The total amount of solids excreted may be found by multiplying the number of ounces of urine passed in twenty-four hours by the last two figures of the specific gravity, and adding 10% of the result. This gives the amount of solids in grains. We may expect a woman to excrete about nine hundred grains of solids in twenty-four hours.

The amount of urea or the total solids excreted is not an exact measure of nitrogenous metabolism; but it is the best at our command. By using this simple test for the total solids we are able to make a very satisfactory examination of the urine in a few minutes.

Each physician must decide for himself just how much attention he ought to give his patients; but he must not forget that eclampsia can be prevented in nearly all cases if he keeps himself informed as to the subjective symptoms and makes a proper examination of the urine as often as may be necessary.

[8] American Journal Medical Sciences, August, 1904.

Clinical Department.

A CASE OF NEUROFIBROMA. (DISEASE OF RECKLINGHAUSEN.)

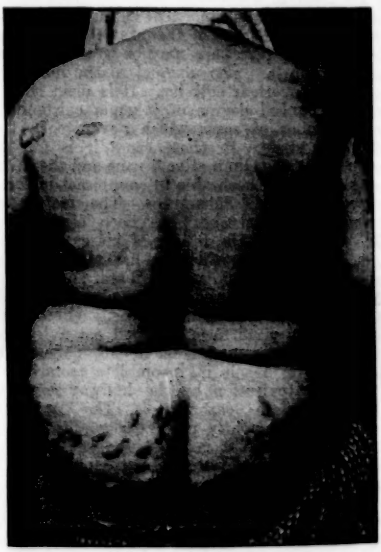
BY EDITH R. MEEK, M.D., BOSTON.

THE patient first presented herself for treatment at the Skin Clinic of the Pope Dispensary in November, 1903. She is a Jewess, born in England, forty years of age.

On the left shoulder are three tumors, dumb-bell-like in shape, joined together and measuring in length 6½ inches. Scattered over back, buttocks, thighs, breasts, and legs are nodules varying in size from French pea to the size of an English walnut and even larger; some are single, others grouped. The color of the skin over the nodules is of different shades; over some it is light pink; over others, of a purplish hue. The growths in all number 44.

The consistency of the tumors varies; the smaller ones, when taken between the fingers, feel like a raisin; the larger ones are harder. Scattered over the skin surface are numerous small pin-head-sized pigmentations. On the inner surface of the right arm can be felt a number of small sub-cutaneous nodules; owing to the large amount of adipose tissue which the patient has, it is impossible to learn much by palpation.

Extending almost around the head is a band varying in width from 2 to 2½ inches, where there is almost an entire absence of hair; the hair just over the center of the forehead and at the back of the neck is present.



For the eye conditions I am indebted to Dr. Ella Dexter. The patient shows choroiditis, beginning atrophy of the optic nerve and internal strabismus. Owing to the kindness of Dr. Blanche Denig, I am able to report that in the right vaginal wall there are two small round tumors.

The patient complains of severe, paroxysmal, radiating pain in the nodules and extending down right arm. This condition is aggravated by exposure to cold, mental emotion or movement. Intense pain is the disturbing feature of the disease. She also complains of severe pain in right side, cramps in arms and legs, and failing sight. She is of a highly neurasthenic temperament.

The patient gives the following history: She was married at the age of sixteen; the first nodule appeared on the right shoulder during her first pregnancy, and steadily increased in size.

During each succeeding pregnancy (but never in the interim) new growths appeared; the pregnancies were ten, occurring in the following order:

First pregnancy: Child, a boy, born at the seventh month, is now a comparatively strong, healthy man. Second pregnancy: Miscarriage at fourteen weeks. Third pregnancy: Three and one half years later, boy born; patient claims child weighed twenty pounds; ailing from birth; died third week of convulsions. Fourth pregnancy: One year later, daughter born; child healthy. Fifth pregnancy: Miscarriage at eleventh week. Sixth pregnancy: Three years, five months later, boy born; child healthy. Seventh pregnancy: Twenty-two months later, boy born; child healthy. Eighth pregnancy: Two years, two months later, girl born; child is not of average intelligence. Ninth pregnancy: Two years later, boy born; child feeble-minded. Tenth pregnancy: Two years later, boy born; child in good health.

At first the patient suffered no discomfort from the growths, but as they increased in size they became very painful until at time of appearance at clinic the patient was almost entirely deprived of the use of her right arm.

Family history: It was possible to examine the mother of the patient and two daughters. The mother showed, scattered over the entire body surface of the skin, small pigmented spots. The mother is of a neurasthenic temperament. Scattered over the skin of the daughter's body were a number of pigmented spots nearly as large as a French pea. The child also shows internal strabismus. She is not of average intelligence. Another daughter, a girl of seventeen, was examined. The skin is normal in appearance. She complained of nervousness, saying that at times she could hardly restrain herself from screaming. One of her sons has been sent to a home for the feeble-minded.

A specimen of one of the growths was excised and sent to Dr. T. J. Leary of Tufts Medical School, for examination. The following report was returned: "Tumor consists of irregularly arranged bundles of fibrous connective tissue and occupies the sub-cutaneous tissue invading the corium. In most situations the upper portion of the corium can be differentiated as a less dense and more faintly staining layer. The tissues of the new growth are, as a whole, more cellular than in a fibroma durum, but in places the fibrillar masses are thick, with few cells. In some foci the strands show marked hyaline changes. The new growth is traversed by capillaries whose course is marked out by small cell (lymphoid and plasma) infiltration, together with epitheloid cell formation. The growth is in parts arranged about nerve fibers whose course is outlined by a cellular sheath and round cell infiltration. In places the deeper portions of the hair follicles have been cut off from their continuity, giving rise to very cellular epithelial nests. The variation in the character of the tissues of the growth, the infiltration of the peri-vascular tissues with small round cells, and the cutting off of portions of the hair follicles by constriction, all suggest an inflammatory origin. The cell masses appear in places to be arranged about nerve fibers. The growth should probably be classed as a neurofibroma.

Adrian in his article, "Die Multiple Neurofibrimatose,"[1] gives three groups; of these he says: "These three groups belong to one disease and are only modifications of one and the same process." The following are the three groups which he gives: (1) The multiple soft fibroma of the skin, the size of which may be from microscopical to the size of a head.

(2) This group may appear simultaneously with the multiple skin fibroma, or independently, as tumors in the deeply-situated nerve branches; they may be distributed upon the trunk itself, or upon all the branches of the plexus; or, finally, may appear upon all the different nerves of the body, spinal, cerebral, and sympathetic.

(3) Plexiform neuroma, so called by von Verneuil, or Rankenneuroma, by von Bruns. New formations appear upon the smaller or larger parts of the trunk; sometimes several plexi are involved; sometimes the fibrous process appears upon central and peripheral branches; so that we have the picture of a diffuse neurofibroma, or an elephantiasis neuroma.

He says further that the histogenetic unity of the different forms has been emphasized and their origin from the nerve connective tissue proven in the work of v. Recklinghausen, and that the name of "Disease of Recklinghausen" is much preferable to any of the following: "Neurofibromatose généralisée," "Fibromatose pigmentaire," "Neurofibromatose pigmentaire," "Dermofibromatose bi-pigmentaire" (Feindel), "Dermofibromatose pigmentaire" (Chauffard).

Feindel gives the following division of symptoms:

(1) Skin tumors. (2) Nerve tumors. (3) Pinhead pigmentations. (4) Placque pigmentations.

If one or more of the symptoms fail there is naturally a different clinical picture shown, and these cases which have been studied by Feindel, Oppenheim and Thibierge, are given the name of "Formes incomplètes ou frustes de la Maladie Recklinghausen."

Thibierge includes even cases without skin and nerve tumors, and bases his diagnosis solely on the skin pigmentation and a series of psychical disturbances; he says the term "Neurofibroma" should not be used; that "Maladie de Recklinghausen" is preferable, and gives, as his reason, that the name "Neurofibroma" is not correct, since it makes of one element of the disease an element which might occasionally fail, its characteristic feature. It is also incorrect for another reason, the possible absence of nerve fibers in the tumors. Under these conditions, it would be right to give a name to the disease, which would not be based upon anatomical characteristics which might not be present, but to call it by the name of the author who has contributed most to the knowledge of the disease.

[1] Recklinghausen'sche Krankheit.

Chauffard and von Jehl consider two different forms under the name of fibromatose pigmentaire, which name includes two of the cardinal symptoms and distinguishes two different anatomical varieties.

(1) " Neurofibromatose pigmentaire," in which the fibroma proceeds from the perineurium and is accompanied by many nerve fibers.

(2) " Dermatofibromatose pigmentaire," in which the fibroma is exclusively cutaneous and of doubtful origin.

According to Feindel, these three factors are concerned in its etiology: (1) Congenital factor. (2) Hereditary factor. (3) Family factor. He says: " The congenital factor is always present, the hereditary frequently, and the family here and there. The congenital factor, though accepted by most authors as one always present, cannot always be proved with certainty. Not every congenital disease has symptoms necessarily at birth. Different cases show different phases of evolution of the disease at different periods of life; one tumor may be congenital, and other tumors and symptoms appear in later periods of life. It is acceptable to think that there is a congenital predisposition, and that after birth unknown causes influence the congenital factor and promote the formation of pigmented spots; that the congenital cause remained latent until some new influence came to its aid, and in this way a fibroma appeared."

In case reported by Feindel the first nodule appeared after a pregnancy; the patient was seventeen; in the following sixteen years no new tumors appeared; two later pregnancies produced each time new fibroma. From this interesting observation Feindel concluded that pregnancy favors the production of the new growths. And this is proved in a case of W. Wolff; the tumors became much more numerous during pregnancy, and the color of the tumors was deeper.

The causes given which influence the congenital factor are: (1) Trauma. (2) Influence of extreme cold. (3) Chronic irritation of the skin. (4) Psychical influences. (5) Overwork. (6) Puberty. (7) Menapause. (8) Pregnancy. (9) Influence of alcohol. (10) Infectious diseases.

SYMPTOMS.

Two groups of symptoms are given by Landowski: (*a*) Cutaneous tumors. (*b*) Nerve tumors. (*c*) Skin pigmentation.

Functional symptoms of secondary importance: Painful cramps, vague disturbances of sensibility, progressive impairment of intelligence.

Landowski claims that the cardinal symptoms are: (*a*) Tumors of the skin. (*b*) Tumors of the nerves. (*c*) Skin pigmentation.

Feindel says the most important symptom is the skin pigmentation, which may occur as pinhead or placque pigmentation.

Cases of disturbance of the sight caused by brain pressure have been reported by many authors. Adrian reports a case of absolute blindness occurring in boy of thirteen.

Henneberg and Kock report two cases; first case, neuritis optica of both sides; second case, atrophy of nerves with complete blindness.

Concerning the diagnosis, Adrian says: " In most cases it is easy, but it may also be very difficult; if the cardinal symptoms fail, one would scarcely think of making a diagnosis from the secondary symptoms, such as functional, psychical, trophic or vasomotor disturbances, notwithstanding the fact that they were very pronounced; but if these existed with a cardinal symptom, such as skin pigmentation, even if there were a complete absence of skin and nerve tumors, this diagnosis would be made. These cases are the " formes incomplète ou frustes " of the disease of Recklinghausen.

The case under consideration presented almost a perfect clinical picture: Skin tumors, possibly nerve tumors of right arm, tumors of vaginal wall, pin-head pigmentation of the skin, disturbances of sight, cramps of arms and legs, and severe pain in right side.

The family history is also of importance. The highly neurasthenic temperament of entire family; the pin-head pigmentation on the mother's body, the large, pigmented spots on the daughter's body; also the affected eye muscles, and impaired intellect of child; finally, the fact that one son is confined in a home for the feeble-minded.

Medical Progress.

PROGRESS IN PATHOLOGY.

REVIEW OF RECENT WORK ON THE PATHOLOGY OF ARTERIAL DISEASE.

BY JOSEPH H. PRATT, M.D., BOSTON.

Syphilis is generally recognized as an important factor in the production of ordinary arteriosclerosis, but it has been maintained by most pathologists that there is no distinct and definite form of syphilitic aortitis which can be distinguished either macroscopically or microscopally from ordinary arteriosclerosis.

Relatively little attention has been paid in England or America to the relation of syphilis to aortic disease, but it has been much studied of recent years in Germany. Osler, was the first American to note the existence of a definite type of sclerosis, localized and nodular, occurring in syphilitics. In 1898, two cases of localized aortic sclerosis " of probable syphilitic origin " were reported from his clinic by Penrose.[1] Microscopical examination revealed severe mesarteritis in both cases.

The occurrence of undoubted gummata in the walls of the aorta is very rare. Gummata of the pulmonary and cerebral arteries were described many years ago, but the existence of gummata of the aorta was assumed *per analogiam* until recently, when, according to Chiari, undoubted cases have been observed by Kalindéro and Babes, and Fabris. Chiari[2] has recently written an admirable account of the development of knowledge in regard to syphilitic disease of the aorta which is here presented in abstract.

Contrary to the teaching of most pathologists Heller of Kiel has for nearly twenty years maintained that the form of aortitis produced by syphilis is quite different from ordinary endarteritis chronica deformans, with which it has been confounded. Syphilitic aortitis is claimed by Heller to have gross and microscopic characteristics which distinguish it. The first paper on this subject by the Kiel school was published in 1885. It was a study of peculiar lesions in the arch of the aorta occurring in a young man of twenty-five. There were pronounced syphilitic alterations in various organs. Ten years later the same author, Doehle, reported two additional cases of syphilitic aortitis. Macroscopically the ascending arch of the aorta was thickened and the inner surface furrowed. There was no calcification and no ulceration. In the first case he found foci of round cells and granulation tissue in the media. A similar histological picture was found in the cases reported in the second paper. Near the areas of granulation tissue the media was in part necrotic; here and there giant cells were seen. Corresponding to the furrows on the inner surface of the aorta were bands of scar tissue extending from the adventitia to the intima. The intima was unequally thickened. The adventitia showed evidence of severe inflammation. Its vessels were surrounded by granulation tissue containing giant cells. The vasa vasarum were in part closed by thickening of their intima. Doehle stated that a syphilitic aortitis could be recognized macroscopically by the stellate, puckered scars and the grooves on the inner surface. Philips found that out of 59 syphilitics autopsied in the Kiel Institute from 1885 to 1892, mesarteritis syphilitica of the aorta was present in 16, or 27%. Backhaus in 1897 reported seven cases of mesarteritis syphilitica of the aorta occurring in men between the ages of twenty-five and fifty-seven years. He emphasized, as had Doehle, the diagnostic importance of macroscopically demonstrable furrows on the inner surface of the aorta. In the media he found circumscribed areas of necrosis with foci of leucocytes and connective tissue proliferation. On account of the central necrosis present in some of these areas he regarded them as gummata. He looked upon the changes in the media as characteristic of syphilitic aortitis. The thickening of the intima which was often present he held to be secondary to the lesion in the media. Two additional cases of mesarteritis syphilitica of the aorta, both complicated with endaortitis chronica deformans, were published from Heller's laboratory by Moll and Isenberg.

Heller, in 1899, presented the result of his observation and study of syphilitic aortitis before the Deutsche Pathologischen Gesellschaft. He stated that the degenerative and proliferative changes in the media are primary. Later scar tissue is formed which leads to a furrowing and puckering of the intima. The thickening of the intima is secondary. There is no tendency to atheromatous ulceration as in the case of ordinary arteriosclerosis of the aorta. The vasa nutritia may be completely obliterated by sclerosis of the adventitia. Luetic aortitis is frequently combined with primary endarteritis chronica deformans, but the pathological anatomy of the two types is quite different. Heller maintained that syphilitic aortitis is a frequent cause of aneurisms.

Simon, another pupil of Heller, reported, in 1900, a case of severe syphilitic aortitis with many areas of round-cell infiltration, giant cells, and circumscribed necrosis in the media.

Crooke observed in a syphilitic, aged thirty years, a girdle-shaped area of fresh endaortitis which occluded the orifices of the coronary artery. There was no tendency to atheromatous degeneration. Microscopically a marked inflammatory infiltration of the media was found. Belfanti reported a somewhat similar case. The mouths of the coronary arteries were partly occluded by a sub-acute aortitis. The subject was a thirty-seven-year old syphilitic. Marked alterations in all three coats of the aorta distinguished the process from common endarteritis.

Abramow observed an inflammatory infiltration of the media with thickening of the intima in a case of aortitis associated with a cylindrical aneurism of the arch occurring in a luetic individual. Heiberg of Christiania, as early as 1876, asserted his belief in the intimate relationship between lues and aortic aneurisims, and in the existence of syphilitic arteriosclerosis. In 1892, he pointed out that syphilitic aortitis is limited to certain portions of the aorta and that the affected areas are quite sharply localized. All the coats of the aorta are involved, but the media suffers most. Puppe of Berlin described, in 1894, cases of severe mesarteritis which he thought were probably syphilitic in origin.

The description of syphilitic aortitis by Rasch conforms closely to that given by Heller. Irregular wrinkling and furrowing of the internal surface is a characteristic feature. The intima is white or dirty gray in color. Calcification may take place if the disease occur in old people. Microscopically a productive mesarteritis is found. Rasch calls the condition fibrous aortitis.

Straub reported, in 1899, that he had found syphilitic aortitis in 69 out of 84 cases of general paresis. Among 71 subjects who did not have paresis, the condition was present in 7, and these seven were all syphilitics.

Still more recently Benenati and Heine have observed cases of pronounced syphilitic aortitis. All were characterized microscopically by destruction of the media. Heine described areas in the media which he regarded on histological grounds as gummata. Chiari notes that Bollinger and Kaufmann express themselves in favor of Heller's views in the new editions of their textbooks.

Chiari found syphilitic aortitis in more than half of the leutic subjects he examined and in 47% of all the cases of paralysis progressiva, 31 in number. As is well known, syphilis is the important factor in the etiology of general paresis. Syphilitic aortitis forms a definite

pathological picture, quite different from ordinary endaortitis. As indicative of the character of the disease process and its primary involvement of the media, Chiari proposes the name of "productive mesaortitis." The specific form of arterial disease differs both in gross and microscopic appearance from ordinary arteriosclerosis of the aorta, with which it is certainly frequently combined in the same individual.

Common arteriosclerosis is due to a variety of toxins of which probably the syphilitic poison is one. The complete scientific demonstration that mesaortitis productiva is of syphilitic origin cannot, of course, be given until the virus of syphilis is discovered. Chiari does not deny that an aortitis with the same anatomical picture may occasionally be due to causes other than lues, and cites the experimental studies of Lewaschew, who produced an arteritis of similar anatomical character in the legs of dogs by long continued stimulation of the sciatic nerve. When mesaortitis productiva is present one is always right, however, in regarding lues as the most probable cause. In mesaortitis productiva there is less tendency for the diseased intima to undergo degeneration than in ordinary arteriosclerosis. The thickening of the intima compared with that of the media and adventitia often appears surprisingly slight and in early stages of the disease may be entirely absent. Furrows and small depressions on the inner surface of the aorta give a characteristic appearance. The process regularly involves the ascending arch of the aorta. By extension it may involve the aortic valves or the transverse and descending arch of the aorta. The abdominal aorta is rarely affected. Microscopically the changes in the media are the most striking. Throughout the media are inflammatory foci consisting of round cells, granulation tissue or connective tissue. In the affected areas the blood vessels are greatly increased. Giant cells are also present; some resemble Langhans's giant cells, others have more the character of foreign body giant cells. Here and there in the media are evidences of necrosis. In the adventitia around the vasa vasorum are foci of round cells and granulation tissue, or thick fibrous tissue. Endarteritis proliferans of the vasa vasorum frequently exists.

Chiari does not employ the designation "gummatous aortitis," because in none of his cases was there pronounced caseation in the inflammatory areas of the aortic wall.

An advanced stage of mesaortitis productiva may be found in young individuals. More of Chiari's cases occurred in the fourth decade than in the fifth or sixth. It is an important affection as it leads to aneurism formation and may cause death directly by closure or narrowing of the orifices of the coronary arteries.

The relation of syphilis to arterial disease has been carefully and critically studied by Benda.[3] He concludes that the small and medium-sized arteries as well as the aorta are frequently the seat of tertiary syphilitic processes. The abdominal portion of the aorta is almost immune. Lesions of the main arterial trunks are most frequent at their points of origin from the aorta. Syphilitic disease of the small and middle-sized arteries stands in intimate connection with syphiloma of the surrounding organs, from which the process involves the arterial wall by extension. The adventitia and media become gummatous, while the reaction of the intima to the luetic process results in a true obliterating endarteritis. The gummatous infiltration rarely invades the intima. The infiltration consists of leucocytes, lymphocytes, epithelioid and giant cells. It tends to undergo necrosis. The disease of the aorta thoracica described by Doehle as syphilitic aortitis and by Malmsten as sclerogummous aortitis is of luetic origin. It is, however, no florid syphilitic inflammatory process, but is essentially a scar formation. It is the remains of a syphilitic process combined with non-syphilitic inflammations and nutritional disturbances of the vessel wall. Syphilitic aortic sclerosis is the name applied by Benda to this condition. The process, leading to the scar formation, consists in the development of granulomata, which vary in size from some visible only with the microscope to others as large as a pea. The disease is an actual gummatous process.

Syphilis of the smaller arteries does not lead to the formation of aneurisms. The obliterating endarteritis which regularly develops tends to prevent it. For this reason the small aneurisms which form on the arteries of the muscles and viscera (periarteritis nodosa) are probably not of syphilitic origin as has been claimed.

Benda asserts that the sclerotic stage of aortic syphilis is of no greater importance in the production of aneurisms than ordinary arteriosclerosis. Both conditions by increasing the rigidity of the aorta enhance the danger of rupture. The stage of gummous inflammation, however, is highly favorable to the formation of aneurisms. The inflammatory infiltration and necrosis weakens the wall of the aorta so that it is dilated and torn by the blood pressure. According to the extent of gummatous destruction, circumscribed or diffuse aneurisms result. In rare instances immediate rupture occurs. Luetic aneurisms in which the specific process has reached an inactive stage can be transformed by sudden inflammation or traumatism into chronic progressive aneurisms which cannot be distinguished from aneurisms of non-syphilitic origin. Benda believes that syphilis plays an important rôle in the etiology of aneurisms. Statistical studies have had great influence in spreading the theory of the syphilitic origin of aneurism. Welch found that 66% of the cases of aneurism studied by him were in syphilitic individuals. Malmsten gives 80%; Heller, 85%; Pansini, 84%; Rasch, 82%; Etienne, 69%; C. Gerhardt, 53%; Lichtenstein, 39%; A. Fraenkel, 36%; v. Hansemann, 18.75%.

SYPHILIS AND ANEURISM.

Marchand[4] disputes the assertions of Heller that ordinary arteriosclerosis plays no part in the origin of aneurisms, and that while arterio-

sclerosis is a disease of old age, aneurism occurs most freqeuntly in earlier life. Marchand points out that the majority of the 28 cases of aortic aneurism which came to section in his pathological institute at Leipsic between the years 1900 and 1903, occurred in the fifth and sixth decennia. Only 3 of the 28 cases were undoubtedly syphilitic; four of the other cases probably had lues. Marchand recognizes two chief types of aortic sclerosis. One corresponds to the picture of ordinary arteriosclerosis, while the other has a more callous quality. This he designates the callous (schwielige) form of arteriosclerosis. It corresponds in its general gross and microscopical features with Heller's syphilitic aortitis. Marchand denies that the disease is a specific process histologically. He regards ordinary arteriosclerosis as the cause of the majority of aneurisms. He admits that the so-called callous form of arteriosclerosis is particularly favorable to the production of aneurisms, and that this form in many cases is due to syphilis.

Heller [5] states that all statistical studies show that aortic aneurisms occur during the prime of life. Marchand's conclusion that aneurism is a disease of old age is based on far too small a number of cases. Benda is mistaken in his opinion that syphilitic aortitis of the type described by Doehle, is a stationary condition. It is not the end result of syphilitic inflammation, but a chronic progressive syphilitic disease. The furrows on the inner surface of the aorta are due to the action of blood pressure as well as to the contraction of scar tissue.

Marchand [6] says in a later paper that he does not doubt that the localized disease of the thoracic aorta which recently has been so sharply separated from ordinary arterioclerosis and regarded as a luetic affection is a definite disease quite distinct from ordinary arteriosclerosis. Owing to danger of sudden death through occlusion of the coronary arteries or the production of severe myocardial disease by partial obstruction of the coronary arteries, this recently recognized form of aortic sclerosis possesses peculiar interest to clinicians. The clinical features have been well described by Curschmann. Marchand has examined many cases without finding pronounced caseation. Since seeing Benda's specimens, however, he admits the existence of gummous aortitis. He concurs with Chiari that the callous form is also luetic. The inflammatory changes are so marked that the term "aortitis" should be employed.

Marchand holds that "primary" fatty or atheromatous degeneration is intimately linked with the sclerosing processes; hence the term "arteriosclerosis" is not sufficiently inclusive. He suggests in its stead "atherosclerosis," or, if preferred, "sclero-atherosis."

After an extensive critical study of the literature, Bonnet [7] concludes that syphilis is the usual cause of aortic aneurism. It alters profoundly all three tunics of the aorta.

Arnsperger [8] analyzed the cases of aneurism in Erb's clinic. Only two of the 37 cases were in women. No less than 65.7% of these presented evidence of syphilis, and in 48.6% undoubted syphilis existed. Luetic antecedents were present in 95% of the sacculated aneurisms, and in only 26.6% of the diffuse aneurisms. Seven of the individuals were in the fourth decade, thirteen in the fifth, twelve in the sixth and only three in the seventh. Arnsperger concludes that lues plays a very important part in the etiology and pathogenesis of aortic aneurism.

Abramow [9] has studied five cases of "so-called" syphilitic aortitis analogous to those described by Doehle, Backhaus and Chiari. He does not regard the process as specific for lues. In none of his cases were gummata present in the aortic walls.

v. Düring [10] recently published an excellent summary of recent studies on syphilitic diseases of the circulatory organs. Luetic lesions of the vessels occur in all stages of syphilis. Brisiadecki concludes from his investigations that all syphilitic processes take their point of departure from the vessels. Rieder and Hoffman have described changes in the veins. Ehrmann's studies of the lesions in the lymph vessels are not yet completed. An obliterating phlebitis occurs in syphilis as Greiff and Nonne have shown, and a meso- and periphlebitis as Rieder has pointed out.

Numerous communications in the literature bear witness to the value of iodine in cardiac insufficiency, arteriosclerosis, angina pectoris and aneurisms. The favorable results are explained by the fact that these conditions are so frequently syphilitic. It has been so convincingly shown by Heller that the majority of cases of aneurism occurring in Kiel are of luetic origin that Quincke, director of the medical clinic in the university of that city, employs a mercurial and iodine therapy in cases of aneurism even when the anamnesis does not point clearly to a pre-existing syphilis. This practice has frequently been attended with success.

v. Düring uses the term "aortitis syphilitica" in preference to the synonyms employed by Chiari and others.

When an aorta, the seat of aortitis syphilitica, is held to the light the grooves and other depressions on the inner surface are seen to be aneurisms *in der Anlage*. Microscopical study shows that the media over these thinned areas are deficient; and it is the media that gives strength to the aortic wall.

Runeberg [11] is convinced by his studies that luetic lesions of the heart are more common than has been taught.

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(*To be continued.*)

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Stated Meeting Held Jan. 31, Feb. 1 and 2, 1905.

The President, Dr. Hamilton D. Wey, in the Chair.

First Day, Jan. 31, 1905.

PRESIDENT'S ADDRESS.

Dr. Hamilton D. Wey, Elmira, said that one year ago it had been expected that by this time the existing differences in the medical profession would have been obliterated, and he urged upon the profession of the the State thoughtful consideration of the report of the Joint Committee of Conference representing the Medical Association and the Medical Society of the State of New York. It was the intention of the present meeting to correct the legal errors of procedure so that in the future they would stand on firm legal ground. He spoke of the valuable results obtained in the treatment of incipient tuberculosis at the State Hospital at Raybrook for the treatment of incipient tuberculosis, and said that these results ought to direct the attention of the public to the importance of early treatment in this disease. He said that as the next meeting would be the centennial meeting of the society he thought it should be celebrated in some appropriate manner. He recommended that local affiliated societies be strengthened as far as possible and some effort be made to secure representation from the eight counties which were not affiliated. He also recommended the abolition of the delegate system and eligibility of all members in good standing in the county societies.

REPORT OF COMMITTEE ON CONFERENCE.

Dr. H. L. Elsner, Syracuse, the chairman of the committee, after reviewing the history of the work of amalgamation, said that there were 6,655 members of county medical societies and 694 members of county medical associations desirous of having the amalgamation effected. There were but 77 members of the association who failed to ratify the agreement. The committee endorsed the suggestion of the President regarding the abolition of the delegate system.

Dr. D. B. St. John Roosa offered a resolution which was unanimously adopted to the effect that the committee on consolidation be continued in service. This committee consisted of Drs. Henry L. Elsner, Abraham Jacobi, Albert Vanderveer, George Ryerson Fowler, and Frank Van Fleet.

REPORT OF COMMITTEE ON HYGIENE.

Dr. John L. Heffron, Syracuse, as chairman, said that this committee recommended a national law for the purpose of securing pure food, that the use of wood alcohol in beverages should be forbidden by law, and in case of violation the offense should be punishable as manslaughter, that the governor should appoint a committee to see that proper sanitary methods were used by railways in cleaning cars at both ends of runs.

REPORT OF COMMITTEE OF STATE BOARD OF MEDICAL EXAMINERS.

Dr. Lewi, Secretary of the Board, reported that since the board had been established there had been in all 8,583 candidates, of whom 6,828 were successful and 1,755 unsuccessful. There had appeared before the Homeopathic Board 23, 21 of whom were successful and 2 unsuccessful. There had appeared before the Eclectic Board 21 candidates, of whom 9 were unsuccessful. Dr. William Warren Potter was elected to serve as president of the board until Aug. 1, 1906, and Dr. M. J. Lewi as secretary.

DERMATITIS SEBORRHOICA AND ITS RELATION TO ALOPECIA AND OTHER CONDITIONS.

Dr. L. Duncan Bulkley, New York, related his clinical experience with this disease. He gave an analysis of 755 cases of dermatitis seborrhoica and 608 cases of alopecia. He said that although the microorganism causing alopecia had not yet been agreed upon he thought the disease to be of parasitic origin. He spoke of the many variations in the local treatment of dermatitis seborrhoica and thought that more attention should be paid to diet and internal treatment as was done in cases of eczema. For the scalp he recommended a lotion of resorcin, alcohol, glycerin and rose water, though in some cases resorcin and chloral hydrate in equal parts gave better results. He stated that 10% of all cases who consulted dermatologists were dermatitis seborrhoica and referred to the other affections with which it might be confounded.

Dr. Ralph A. McDonnell, New Haven, Conn., said that the fund of clinical material which Dr. Bulkley had at his disposal entitled his views to first consideration, and that his ability as a prescriber was well known. He was impressed by two features of the paper, — the small attention paid to the internal treatment of the condition and the relatively large importance accorded to the treatment of the falling of the hair. There was an unbroken sequence of diseases recognized as belonging to disturbed conditions of the gastro-intestinal tract, as seborrhea, acne vulgaris, eczema seborrhoicum, acne rosea, etc. He believed it was an utter impossibility to cure cases of acne rosea or vulgaris without some attention to the dietary. He called attention to the large number of cases of falling hair treated by good men by external remedies without good results. He thought that advances in the treatment of this condition should be along the line of internal medicine. Various germicides had been rubbed into the skin since the earliest days, but nothing had been done towards getting to the bottom of the difficulty, *i. e.*, attention to intestinal fermentation.

TO WHAT EXTENT ARE CYCLOPLEGICS NECESSARY IN DETERMINING THE REFRACTION OF THE EYE AND IN THE PRESCRIBING OF LENSES.

Dr. Frank Van Fleet, New York, in his paper said that he confined himself to the refraction of the eye, including the ciliary muscle, upon which he believed the determination of the entire subject depended. If the ciliary muscle was paralyzed while attempts were being made to correct defects of vision one was working on an erroneous basis, as the eye was in an abnormal condition. The fact that symptoms which seemed referable to defects of the eye did not cease when lenses were fitted was not proof positive that the lenses were not properly fitted. He did not think that cycloplegics were necessary in making ophthalmic examinations. Cocaine might be used if it was desirable to dilate the pupil. The dilatation of the iris and relaxation of the ciliary muscle following the first contraction caused by the bright light of the ophthalmoscopic mirror was usually sufficient to permit one to estimate the amount of error. In cases of hypermetropia with asthenopic symptoms he corrected the amount of manifest error and increased the strength of the lens as circumstance required. The correction of manifest hypermetropia in a person with asthenia who has never worn glasses gave relief and comfort. If, however, relief was not obtained a cycloplegic should be resorted to. In simple myopic astigmatism a glass which represented the

full amount of the error usually proved satisfactory. In simple hypermetropic astigmatism this might or might not be the case. He said that he used atropine in mixed astigmatism quite frequently. In children he paralyzed the accommodation with atropine in cases of myopia at least every six months, protecting the eye with colored glass until the disease no longer manifested a tendency to increase. Good results were obtained by the use of atropine in intermittent strabismus convergence. In cases of eye strain in older persons atropine accomplished much by enforcing rest. He thought that the occasions for the use of cycloplegics in the refraction room were rare.

Dr. W. E. Lambert, New York, said that recently a man who had given much time to the study of this matter had stated that it was impossible to estimate the error of refraction in any one case without the use of some cycloplegic. Many present at the reading of that paper had disagreed with the view taken. Dr. Lambert said that he believed in the use of cycloplegics when they were indicated, but thoroughly disapproved of their abuse, especially in the case of drugs which were dangerous. He spoke of the dangers of atropine and cocaine. The fact that glaucoma could be caused by these drugs was sufficient reason for avoiding them. Again, one should not forget the discomfort to the patient caused by their use. He did not think that Dr. Van Fleet had sufficiently emphasized the shadow test in determining errors of refraction; he considered this test to be most reliable and valuable if properly understood. Astigmatism was shown by the shadow test and it would indicate what cylinder the patient would take. It was very important in cases of refraction to determine accurately the amount of astigmatism. He said that the optometry bill that was before the legislature made it evident that the dangers attendant upon the use of atropine and other cycloplegics and the prescribing of glasses should be made known in their endeavor to defeat that bill. He spoke of two cases that he had seen, one in which an optician prescribed glasses telling the patient that he had three lesions when no such lesions existed, but the patient had opacity of the cornea. A second patient had glasses fitted for presbyopia when he was suffering from neuroretinitis and hemorrhages.

Dr. Lucien Howe, Buffalo, pointed out that we were becoming more conservative and that it was not now considered necessary to use atropine, although in certain cases it was good. Atropine could not be relied upon as one never knew just how much be was putting into the eye. He believed the discs should be used. When a certain amount of atropine had been introduced into the eye we did not know what kind of an eye or what kind of a ciliary muscle we had to deal with. He said that we should work on a physiological basis, and when atropine was introduced into the eye there could not be normal vision. He related some experiments that he had made on soldiers at Fort Porter which convinced him that strong solutions were not necessary in order to note the behavior of the ciliary muscles. The tablets of atropine made by Wyeth he said were exceedingly useful. He emphasized the fact that even when the minimum dose was introduced into the eye we were not dealing with a normal eye, although accommodation did relax as in the normal eye. The condition of the ciliary muscle was to be learned and this must be worked out, as he believed it would be in time.

Dr. D. B. St. John Roosa of New York believed that, in this country, we were trying to be too exact in the adjustment of glasses. Nature did not make two trees exactly alike, nor did she make the fingers of one hand like those of its fellow. He did not believe that this exactness in determining the power of the ciliary muscle was at all needed. A man wanted glasses in order to enable him to see. Many men came to the oculist simply to be sure that the glasses had been properly adjusted, and this was the reason Dr. Roosa had come from one extreme of the pendulum to the other. Formerly it was taught that accommodation must be completely paralyzed, but a reasoning sense now was shown in this matter of the adjustment of glasses. After referring to the use of the ophthalmometer and retinoscope, he said that many thought atropine to be necessary in determining errors of refraction, and he was glad to learn that level common sense was now being displayed in adjusting glasses, and that it was now being realized that Nature did not require or expect such perfect organs.

Dr. Abraham Jacobi of New York said that the use of atropine had been spoken of in connection with internal strabismus; if internal strabismus occurring in children was referred to he looked upon it as a misfortune, for one should wait a few months before resorting to the use of atropine in these cases until this disparity between the eyes corrected itself, as it would do in the majority of cases. It would occur in the same way that the disparity between the flexors and extensors of the lower extremity would in the course of time. There was no doubt in his mind that this disparity between the internal and the external rectus muscles in young babies would equalize within a few months. He asked Dr. Van Fleet if atropine was recommended for the purpose of correcting internal strabismus in babies.

Dr. Frank Van Fleet replied that young children were referred to and not young babies.

RHEUMATISM AND THE EYE MUSCLES.

Dr. Francis Valk, New York, stated in his paper that the uric acid diathesis might affect the ocular muscles, not a paresis, producing certain symptoms similar to those of muscular asthenopia. These symptoms could be shown by the findings of the tests for the muscular rotation of the eyeballs under fusion and version. In the uric acid diathesis one or both lids might be restricted in all directions of rotation of the eye. The treatment of these conditions should be more general than local, and it was important not to regard the manifestations as local.

Dr. A. Edward Davis of New York said he was very much pleased to have been able to hear the paper which was somewhat out of the ordinary. He said he had not recognized these cases except in few instances where there was a limited motion of the eye and diplopia, etc. He reported one case in which nothing bearing on the cause could be learned except that the patient bad been subjected to severe fright. This patient had a divergent squint and well-marked facial paralysis on the left side. After being examined very carefully she was referred to the throat clinic, but no paralysis of the soft palate was found. Then she was examined by the nose specialist and nothing abnormal found there. Then she was sent to the nerve specialist and the conclusion was arrived at that the child was somewhat hysterical. The patient was now in the hospital and under no treatment whatever. Inside of one week the diplopia disappeared, the facial paralysis disappeared and the child was to-day practically well. The only thing in the history was the fright. This case he thought might possibly be included among the cases Dr. Valk spoke of, although he was inclined to believe it was truly a hysterical manifestation. With regard to the contraction of the visual field he could not account for it unless the optic nerve was at fault. Where there was a manifest diplopia he believed the field of vision should be taken.

THE SIMULATION OF APPENDICITIS BY CHOLELITHIASIS.

DR. GEORGE G. LEMPE, Albany, reported a case in which almost classical symptoms of appendicitis were presented and all the manifestations seemed to be in the right lower quadrant of the abdomen. At operation the appendix was found to be normal but a large number of gallstones were found in the right upper quadrant. It seemed impossible in some cases to make a differential diagnosis, but as operation was necessary in either event the decision had to be made by exploratory laparotomy.

ARTERIO-SCLEROSIS AND THE NERVOUS SYSTEM.

DR. B. C. LOVELAND, Syracuse, called attention to the fact that some of the earliest manifestations of arterio-sclerosis revealed themselves in the nervous system and if discovered the progress of the disease might be retarded. When such symptoms were noted there should be a readjustment of diet, and an avoidance of excessive physical or mental effort. Stimulants seemed to predispose to the condition. If high arterial tension was present the amount of water ingested should be limited, otherwise a liberal amount of water should be insisted upon. The iodides should be administered, especially the yellow iodide of mercury in $\frac{1}{8}$ to $\frac{1}{4}$ gr. which was least likely to cause stomach disturbance. Aconite and the nitrites might be given for months to keep the arterial tension low.

LOSS OF VISION FROM DISUSE OF THE EYE, AMBLYOPIA EX ANOPSIA.

DR. D. B. ST. JOHN ROOSA, New York, said that this loss of vision from disuse often occurred in cases of squint, where one eye was not equal to the other in visual power. The image became gradually neglected and the eye consequently lost its power of seeing. It was quite commonly believed that vision was never fully recovered in these cases. Dr. Roosa, however, related the case of a man who has lost vision in his right eye and used his left for all seeing purposes, when an accident deprived him of the sight of the left eye. He gradually regained the use of the right eye although he had been practically blind since his childhood. There were a few such instances in literature.

DR. FRANK VAN FLEET of New York said that it was less strange perhaps than it seemed on the face of it that two minds working along the same channel should have the same thoughts. The trite saying that "there was nothing new under the sun," he said, was exemplified in the statements made by Dr. Roosa. He had never been able to convince himself that amblyopia was necessarily the result of disuse of the eyes. When one looked at an object two images were formed and the perception of these took place in the brain. If two images were formed in the brain, as well as in the eyes, he thought it naturally followed that there must be some force in the brain which caused vision of these two objects and, therefore, amblopia was not a correct term to use in speaking of the condition as applied to the eye, but the amblyopia was the result of some cerebral condition. He believed it possible for some people to develop visual centers in the brain which otherwise would not be developed. In his early youth Dr. Van Fleet was left handed, but by education he acquired the use of his right hand until he forgot how to write with the left hand. This was to him a very peculiar thing and, in his work, he sometimes forgot whether he was using the right or the left hand. This applied to the brain in vision as well as in other parts of the body. He said he believed it was possible *not* to develop this center. He could conceive how a condition might exist wherein it was impossible to overcome amblyopia, whether it existed from birth or was acquired. He had seen cases, he had no doubt, in which he knew that such development was impossible.

DR. LUCIEN HOWE of Buffalo was struck by the fact that comparatively little was positively known regarding this subject. Those cases which were of central origin were seen in which vision could not be improved. He reported a case similar to the one Dr. Roosa reported. With regard to the treatment of strabismus he said that while the general impression was that division of the muscles was the proper thing to do followed by the education of the other eye afterwards, the first was easy but the second was not. The stereoscope offered an advantage in which the vision of the good eye was made less and to such an extent that the patient could not help using the bad eye. Therefore, he believed that the treatment of strabismus became an important point and should not be underestimated.

DR. FRANCIS VALK of New York said the paper brought up the question as to whether there was such a thing as congenital amblyopia. He believed there was. In other words there were certain people born with a degree of blindness which could not be recovered from. He said he had seen a number of such cases. The case reported by Dr. Roosa was unusual because it occurred under certain conditions in which one eye vision was completely lost. He recently had seen a case that was unquestionably amblyopic in both eyes. The patient had always used both eyes, always able to fix them upon the object and, so far as he remembered, always with the same vision. Examination of the eyes some eight years before showed vision as it was to-day. Yet this patient was a barber and performed his work by the sense of touch. Unquestionably this was a case of loss of vision, without squint or conception of the image, the patient not being able to see at all. He believed this was a case of congenital amblyopia.

DR. A. EDWARD DAVIS of New York said he had examined the patient reported by Dr. Roosa. He said he had under his care a patient, twenty-five years of age, who only used one eye and who had binocular single vision. Another case he had that had been operated upon when a child and whose eyes were not perfectly straight. He saw him twenty years after the first operation. After the use of the stereoscope, he got the use of both eyes again. He was out of his care for three years when he was found to be in his original condition.

BILIARY DRAINAGE IN OPERATIONS ON THE GALL BLADDER AND BILIARY DUCTS.

DR. EUGENE A. SMITH of Buffalo related in detail some twenty-five cases of biliary disease that he had operated upon during the past two years. where drainage of the biliary region had given most satisfactory results. He thought that drainage lessened the tendency to relapse and to persistence of low grade symptoms. In some cases the discharge of bile was excessive, reaching 16 to 30 oz. in twenty-four hours. Deaver held that biliary cirrhosis was due to biliary obstruction, and if this was true drainage served to prevent damage to liver tissue and enabled the organ to throw off offending substances. He preferred cholecystostomy to cholecystectomy; in the latter the mortality was 6% while in the former only 2%. In his series of 25 cases there had been but two deaths.

REPORT OF A CASE OF VASO-MOTOR DISTURBANCE CAUSED BY EXPOSURE TO SUNLIGHT.

DR. SAMUEL B. WARD of Albany reported a case of erythema and urticaria, with a condition resembling neurotic edema caused by exposure to the sun. There

was a history of muscular rheumatism. There was no purpura and no nephritis, digestive disturbance with much formation of gas, but no colic.

Dr. Abraham Jacobi of New York spoke of a patient whom he had kept on nitrate of soda for months; she could not take nitro-glycerin. He gave her 1-200 gr. of nitrite of soda which she could take and with relief.

Dr. E. Wood Ruggles of Rochester reported the case of a young girl who was in apparent good health except that she was constipated and she had irregular menstruation. During the past two years when in the cold air an eruption similar to urticaria appeared, but was confined to the face which became slightly flushed. This condition would last so long as she was exposed to the open air. When she returned to a warm room the condition gradually disappeared. Some authorities had stated that the condition was not symmetrical, but in the patient it was symmetrical. He regarded it as a vasomotor neurosis.

Dr. B. O. Kinnear of Clifton Springs said that the condition might be central in origin. In many cases by applying cold water over the spine one could overcome the excitement of terminal points of nerves. In some cases the actinic rays caused an erythema in those cases in which the nerve centers were hyperemic. Slight excitement would induce a hyperemia, then a congestion, changing to eczema, etc., in various cases. He suggested that perhaps such remedies like ergot, or bromide of potassium might possibly be of benefit in these cases.

Dr. Frederic C. Curtis of Albany believed that these cases were cases of idiosyncrasy. One of the most curious things that occurred in one's medical experience he thought to be concerning urticaria resulting from some local irritation; some believed it was a neurosis and some did not. Some were affected by mosquitos, some by fleas, and some by sleeping between sheets. There was but one remedy and that was "Avoid the cause."

SYMPOSIUM ON CEREBROSPINAL MENINGITIS.

PATHOLOGY AND BACTERIOLOGY OF CEREBROSPINAL MENINGITIS.

Dr. W. T. Councilman of Boston said that this disease deserved this the name of meningo-encephalitis on account of the connection of blood vessels and lymphatics. The inflammation involved not only the serous membranes of the brain, but also the brain itself. The way in which infectious agents gained access was not definitely known. Infection might take place by the blood or by extension from some other organ. All of the cord and brain might be affected, but usually the cord was more affected. Bacteria of pyogenic nature, as diplococcus intracellularis meningitidis, pneumococcus and streptococcus might produce acute meningitis. In acute cases the first of these was found to be present in every instance, but it was rarely found in cases of a chronic nature. There had been four epidemics of cerebrospinal meningitis in Massachusetts since 1809, the mortality ranging from 20% to 75%. In the Boston City and Massachusetts General hospitals there had been 61 autopsies since 1898, in 13 the diplococcus meningitidis was found; in 8 the disease seemed to be due to the same cause although cultures did not show the presence of this organism. The diplococcus had a feeble vitality and was difficult to study. Statistics showed a gradual decline in the number of cases in recent years. He thought the diplococcus intracellularis to be responsible for primary cases. According to statistics every case in which the pneumococcus or streptococcus was found by spinal puncture had been fatal. It seemed evident that these micro-organisms were more severe on the tissues of the central nervous system than the diplococcus of cerebrospinal meningitis. Epidemics seem to occur at more or less regular intervals although sporadic cases were constantly occurring. During epidemics the disease seemed to be especially virulent. The micro-organism has a tendency to die out quickly on any kind of a culture medium. In the laboratory it is very difficult to grow the organism successfully. As a rule it has but little effect on the ordinary laboratory animals.

SYMPTOMATOLOGY AND DIAGNOSIS.

Dr. H. L. Elsner, Syracuse, said the cerebrospinal meningitis was endemic in his locality. There had been 175 deaths from this disease in Syracuse during the past eleven years and 499 had been reported as due to meningitis. There had been an epidemic within the last two years, and curiously no cases were admitted to the hospital during the epidemic, while at other times an occasional case turned up. While cerebrospinal meningitis usually occurred in the homes of the poor it was also found under favorable sanitary conditions. It very rarely affected adults. Some ten years ago an epidemic of the disease occurred on board the U. S. S. *Minneapolis* and, although there were 1,450 men on board the vessel, which was supposed to accommodate only 500, only 23 men became infected and of these only 6 died. It rarely attacks those over forty years of age and one attack is supposed to give immunity. It frequently happened that other infective diseases ran their course alongside of cerebrospinal meningitis and seemed to bear some relation to it, as acute anterior poliomyelitis, Landry's paralysis, etc. Mental worry and fatigue seemed to be a predisposing cause of the disease. Sometimes it was not confined to the central nervous system, but produced metastatic lesions, especially in the joints. The pneumococcus has been found in the joints in many instances. Kernig's sign was present in a majority of the cases, though he did not regard it as pathognomic. He thought that its early presence taken in conjunction with certain brain symptoms might permit an early diagnosis. Lumbar puncture was an important diagnostic help. It used to be considered that the appearance of the fluid gave important information, but it was now known that this was not to be relied upon. The finding of the diplococcus intracellularis demonstrated the diagnosis without a doubt.

(To be continued.)

Recent Literature.

First Principles of Otology. A Textbook for Medical Students. By Albert H. Buck, M.D., New York City, Clinical Professor of Diseases of the Ear, College of Physicians and Surgeons, Medical Department of Columbia University, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary and the Presbyterian Hospital. Second edition. New York: Wm. Wood & Co. 1903.

Undergraduate medical students require a book which shall give them in small space the essentials of otology, and the present volume seems to fill this demand. Designed primarily for the use of the author's students, it has met with such favor that it has seemed desirable that the students of other medical schools should also have the privilege of using this second edition.

THE BOSTON

Medical and Surgical Journal.

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THE OCCUPATION OF NURSING.

On Friday of this week a conference is to be held in this city to consider the question of forming an association of those interested and actively engaged in advancing the cause of nursing. It is hoped that through the formation of such an association more uniform methods of training, higher standards of education, more effective coöperation between the medical profession and nursing and more serviceable relations between nurses and those needing their services may be brought about. It is announced that Dr. R. C. Cabot will deliver an address upon "The possible uses and benefits of the proposed association." A long list of representative names, headed by President C. W. Eliot, is appended to the circular which announces the aims of the meeting.

If this meeting fulfils even a part of the object which it has set itself of fundamentally improving the art of nursing it will have justified the efforts of its promoters. The tendency of the past few years has been toward greater coöperation among nurses, and completer organization. With this has naturally come an increasing sense of the dignity of the calling, until it is now insisted in some quarters that nursing must hereafter be termed a profession. Whatever our personal opinion may be regarding the justification for this change of attitude, we are convinced that whatever tends to improve nursing as an art is to be encouraged, and whatever on the other hand tends to obscure this element should meet with the warmest condemnation. It is a matter of small consequence whether a body of women band themselves together as a profession, or under some humbler title, provided they do not lose sight of the object for which they exist, namely, simple nursing of the sick.

Just in so far as the organization which meets this week insists upon this practical matter as the corner stone of its work, it will be of benefit. If it can succeed in still further impressing upon nurses the extraordinary difficulty of the calling they have chosen, and the high qualities of mind and character demanded for its successful accomplishment, it will be welcomed and encouraged by the medical profession. If, however, and here we see a positive danger, the main issue is lost sight of in organization and theory and insistence on more training, when more training is not needed, we cannot see in it a source of progress. What physicians wish is good nurses, and if nursing is to be a profession it must supply good nurses. If this can be better done by organization, no one can possibly object; if organization tends towards a neglect of the individual patient, let us return to the simpler methods. These are matters for the nurses themselves to decide.

The problem is a simple one to state. How are we to secure trustworthy, tactful, sufficiently trained nurses? How is the physician to be protected, and to protect his patient against bad temper, lack of judgment, carelessness, and tactlessness or worse, on the part of the nurse? Are we to expect from the nurses' organization a censorship which will reduce to a minimum the possibility of entrance to their calling of women unfitted by education and temperament for the exacting work which it entails? or are these fundamentals to be forgotten in the broader questions which now seem to be pushing toward the front? If our doubts grow insistent at times, it is not without reason. Nursing is drudgery, and, so far as we can see, always will be. If the drudgery can be lightened, so much the better, but women undertaking nursing should fully appreciate the facts as they are before they have injured both themselves and their calling by failure when the actual test comes. The modern nurse is often sufficiently well trained in the mechanical part of her art, when she falls lamentably short of the qualities which render her possible in a sick room. What we now need is tact, and willingness to work, and common sense, perhaps difficult qualities to instil, but none the less essential. We trust, if the association to which we have alluded is formed, that it will give a share of its attention to these prosaic matters, and recognize the pitfalls into which it may easily fall under the present policy of expansion.

REPORT OF THE CRAIG COLONY FOR EPILEPTICS.

We have for several years looked to the Craig Colony as an example of the best and most progressive work in the colony treatment of the epileptic in this country. The eleventh annual report of this colony for the year ending Sept. 30, 1904, is in our hands, and bears ample evidence of the spirit of research as well as the improved methods of care for the bodily wants of the inmates. The population has naturally changed more or less from year to year. The year under consideration showed a total of 893 with a preponderance of males over females of upward of one hundred. In spite of this large number who were resident at the institution in September of last year, there were nearly seven hundred seeking admission, a commentary both on the increasing popularity of this method of care and of the deplorable need of increased accommodation. A protest is, however, entered against the treatment of idiot and imbecile epileptics at the colony. It is maintained that for this class the system is not desirable and that other provision in a separate institution should be made for this most helpless portion of the epileptic population. "The colony system should stand only for epileptics capable of enjoying and deriving benefit from its many advantages," is the attitude assumed by the management.

It is an unfortunate fact that the appropriation granted by the state has been insufficient to accomplish needed improvements. For the past two or three years the appropriations have been cut to the lowest possible figure, reaching last year the smallest in the history of the colony, $13,000. The report of Dr. W. P. Spratling, Medical Superintendent, is of great interest as showing what may be done under decided disadvantages toward the development of a great charity. During the eight and a half years of the existence of the colony fifty-seven houses, capable of accommodating a thousand patients, have been constructed, and an enormous amount of work done toward improvement of the land and development of the farms. Dr. Spratling takes a somewhat more hopeful view than that ordinarily entertained regarding the treatment and possible cure of the epileptic. He states, in spite of the chronic character of the disease as it usually appears at the colony, that 5½% of all epileptics admitted have been cured. He mentions one case entering the colony after having been an epileptic for sixteen years, during which he had had between fifty and sixty thousand seizures, who was discharged recovered in 1898, after two and a half years' treatment. This patient has remained perfectly well up to the present time. Dr. Spratling dogmatically states that epilepsy belongs to the curable diseases, and he speaks from an experience which few others have had. This is encouraging, and in itself justifies what is being attempted for the relief of this class of patients.

A portion of the general report, to which many will turn with interest, is that of the resident pathologist, Dr. B. Onuf. When Dr. Onuf undertook the pathological work at the colony, the laboratory and its equipment was insufficient. This has in great measure been rectified, and, although more room is still needed, facilities are adequate for the detailed study which Dr. Onuf has set himself to carry out. Naturally, small results have as yet been obtained, but it is clear from a perusal of this report that no pains are to be spared in making the most thorough-going pathological investigations of the material at his disposal. We shall look with interest to future reports for the progress of this work, which, so far as we are aware, is nowhere in this country being undertaken in so painstaking a fashion as at the Craig Colony.

The work being done at this institution, as well as at the colony in Massachusetts, is sure to be productive of most valuable results. These results have already begun to show themselves in the increased interest which the study of epilepsy is arousing, and in the clinical and, to a less degree, pathological conclusions which have already been reached.

PRESIDENT ROOSEVELT'S ADDRESS AT THE UNITED STATES MEDICAL SCHOOL.

President Roosevelt has entered a somewhat new rôle in addressing the graduates of the United States Medical School at Washington on matters pertaining to their profession. The address is characteristic and reiterates many matters which are of much importance to the profession of medicine. After eulogizing the family doctor, the President drew attention to the fact that physicians entering the navy will have an opportunity to study tropical disease denied to their stay-at-home brothers. A matter which no doubt struck an answering chord among his hearers was that every effort should be made by the Government to provide adequate means for the prosecution of this and other medical work in the army and navy. He con-

demned in no uncertain words the tendency to complain of results and yet fail to provide adequate means of obviating such results. The responsibility of providing for a satisfactory medical service rests with the people, and their representatives, and to the people and those representing them should be given the blame when failure comes, if such provision be not made. Evidently the President spoke feelingly, and with a keen remembrance of the miserable failures in the medical service following and during the Spanish war. It is also clear that he places the blame where it justly belongs, not upon the medical men themselves, but upon the system of which they were the victims. Within a few days, we have received from the War Department two large volumes on the "Origin and Spread of Typhoid Fever in United States Military Camps during the Spanish War of 1898," prepared under the direction of the Surgeon-General of the United States Army by Drs. Walter Reed, Victor C. Vaughan and Edward O. Shakespeare. No doubt this is a valuable contribution to the study of typhoid fever, but it offers a somewhat melancholy commentary on the President's words to which we have just alluded. The address in general should have proved most stimulating to those about to enter on their medical work, appealing as it did not only to the medical side of their calling, but also to their larger relations to the Government.

MEDICAL NOTES.

DR. RUDOLPH MATAS. — The colleagues and students of Dr. Rudolph Matas, professor of surgery at Tulane Medical School, New Orleans, celebrated Sunday, March 19, the twenty-fifth anniversary of his graduation from that school, by the presentation of a handsome silver service.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 29, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 23, scarlatina 32, typhoid fever 5, measles 10, tuberculosis 47, smallpox 0.

The death-rate of the reported deaths for the week ending March 29, 1905, was 18.9.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 25, 1905, was 209, against 237 the corresponding week of last year, showing a decrease of 28 deaths, and making the death-rate for the week 17.75. Of this number 106 were males and 103 were females; 200 were white and 9 colored; 119 were born in the United States, 89 in foreign countries, and 1 unknown; 39 were of American parentage, 140 of foreign parentage, and 30 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 25 cases and 4 deaths; scarlatina, 41 cases and no deaths; typhoid fever, 3 cases and 1 death; measles, 10 cases and no deaths; tuberculosis, 47 cases and 27 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 36, whooping cough, none, heart disease 23, bronchitis 6, and marasmus 1. There were 5 deaths from violent causes. The number of children who died under one year was 32; the number under five years 44. The number of persons who died over sixty years of age was 64. The deaths in public institutions were 62.

NEW MEDICAL SCHOOL FOR DARTMOUTH. — It is announced that a new medical school for Dartmouth College is to be constructed in place of the one now in use, which dates back upwards of one hundred years. It is said that the cost of the new building will be $30,000, much of which has already been raised among the alumni.

NEW YORK.

DEATH OF A NURSE. — Miss Blauvelt, for the past six months a nurse in the Harlem Hospital, died on March 20, from cerebrospinal meningitis, contracted apparently from patients suffering from the disease whom she had been nursing in the hospital.

CROWDING OF BELLEVUE HOSPITAL. — On March 20, there were 1,041 patients in Bellevue Hospital, the largest number recorded in the history of the institution. The congestion at the hospital has been in a measure relieved by the four tent-covered pavilions recently placed on the grounds. These accommodate 112 patients, and the total capacity at Bellevue is now 1,100 beds.

NEW MANHATTAN EYE AND EAR INFIRMARY. — Ground for the new Manhattan Eye and Ear Hospital in East 64th Street was broken on March 23 with public exercises. Mrs. Agnew, the widow of the late Dr. Cornelius R. Agnew, to whom the institution owed its existence, removed the first shovelful of earth, and Dr. Andrew H. Smith made an address in which he reviewed the history of the hospital. The ground for the

new building cost $125,000, and the estimated expense for the building, fully furnished and equipped, is $600,000. There are to be sixty rooms for private patients and accommodations for 150 ward patients, in addition to large out-patient departments.

CEREBROSPINAL MENINGITIS COMMISSION. — The cerebrospinal meningitis commission appointed by President Darlington met at the Health Department building on March 21 and organized. A second meeting was held on the 24th, at which clinical reports were received. The bacteriological work of the commission is being carried on at the Carnegie Laboratory, the laboratories of the Rockefeller Institute and the Long Island College Hospital. Prof. T. Mitchell Prudden of the College of Physicians and Surgeons has been appointed consultant to the Commission.

ARREST OF A FRAUDULENT PRACTITIONER. — Dr. R. N. Mayfield has been arrested and held in $2,500 bail on the charge of practicing medicine under an assumed name, that of Prof. Robert Koch of Berlin. The arrest was caused by the Medical Society of the County of New York, acting through its counsel, who accused him of having signed the name of Dr. Koch to a letter given to a woman detective employed by the society. In an affidavit the latter states than on Feb. 3, she called at the office of Mayfield, who said he was Professor Koch. He pronounced her in the first stages of consumption and stated that the charge for treatment would be $15 a month, in advance. She paid $2 down and said she would return later in the month to pay the balance.

CONVICTION OF AN ABORTIONIST. — The Appellate Division of the New York Supreme Court has unanimously approved the judgment of the Court of General Sessions in the case of Dr. Edward E. Conrad, the advertising abortionist who was convicted of an attempt to perform a criminal operation. Conrad, it will be remembered, was tried before Recorder Goff, and was sentenced to state prison for not less than one year nor more than two. The case was instituted by the County Medical Society, and the conviction was brought about by means of a trap which had been arranged by its counsel, detectives being present in the apartment where the operation was to be performed. The defense was that as the defendant had been lured into the commission of the alleged overt acts he could not be punished therefor.

Miscellany.

THE AGE LIMIT AGAIN.

JUDGING from a recent editorial in the *British Medical Journal*, our contemporary and the English people in general have taken the Osler episode with calmness, if not with an entire agreement in the conclusions reached by Dr. Osler. We append a part of our contemporary's comments:

Our American cousins, who are obsessed by the fixed idea that the Britisher is impervious to humor, seem to have taken the matter too seriously; if the English novelist could have foreseen what was to happen, he would doubtless have followed the considerate example of Artemus Ward and guarded against misunderstanding by adding, "This is a goak."

On the general question we agree with Dr. Osler that in the case of physicians and surgeons to hospitals, military and naval officers, heads of administrative departments and officials of all kinds, a limit of age is, as a general rule, beneficial. If we consider only the individual, nothing is more pathetic than the veteran who lags superfluous on the stage; but regarded from the wider outlook of the public interest, nothing can be more mischievous than the retention of positions of authority by men whose minds have become fixed by long habit in a mold of routine and tradition. It would be well if the example of the French professor who preferred to leave his chair rather than fall out of it were more widely followed. But if the arbitrary limit fixed by Professor Osler were adopted as a hard and fast rule of public life the realm of intellectual achievement would be incalculably the poorer. The world, in the spiritual as well as the political spheres, is largely governed by men who, under Professor Osler's rule, should have been compulsorily retired long ago, and in all departments of literature, art and science, work of the highest value has been and is being done by men whose tale of years exceeds threescore.

Professor Osler's statement that all the best intellectual work is done by men under forty is not by any means borne out by facts. Goethe, indeed, said that no man got a new idea after forty, but this hard saying is absolutely contradicted by experience. To Dr. Osler's dogmatic assertion we oppose an equally positive statement by an oracle of at least equal authority. In his speech on copyright delivered in the House of Commons in 1841, Macaulay said: "It is the law of our nature that the mind shall attain its full power by slow degrees; and this is especially true of the most vigorous minds. Young men, no doubt, have often produced works of great merit; but it would be impossible to name any writer of the first order whose juvenile performances were his best. That all the most valuable books of history, of philology, of physical and metaphysical science, of divinity, of political economy, have been produced by men of mature years, will hardly be disputed. The case may not be quite so clear as respects works of the imagination. And yet I know no work of the imagination of the very highest class that was ever, in any age or country, produced by a man under thirty-five. Whatever powers a youth may have received from nature, it is impossible that his taste and judgment can be ripe, that his mind can be richly stored with images, that he can have observed the vicissitudes of life, that he can have studied the nicer shades of character. How, as Marmontel very sensibly said, is a person to paint portraits who has never seen faces? On the whole, I believe that I may, without fear of contradiction, affirm this, that of the good books now extant in the world more than nineteen

twentieths were published after the writers had attained the age of forty."

This is in accord with the fact — which can scarcely be denied except by those who love paradox more than sober truth — that the intellectual powers do not reach the stable equilibrium of full and harmonious development till the age of forty or even later.

DR. WILLIAM W. IRELAND'S FIFTIETH ANNIVERSARY.

DR. WILLIAM W. IRELAND was presented, March 4, on the occasion of the fiftieth anniversary of his medical graduation, with an illuminated address and a pocket book with a sum of money. The ceremony took place in the Library of the Royal College of Physicians, Edinburgh. Dr. Playfair, President of the College, was in the chair, and there was a large attendance of medical men from all parts of the country. Dr. Clouston made the presentation.

The following is a copy of the address:

You entered your profession at an epoch when modern medicine was laying its foundations on a scientific basis. Your teachers in the University of Edinburgh were men of the highest gifts, and, catching their spirit, you have yourself worked hard for the advancement of medicine and the abatement of human suffering in many important ways. Severely wounded at the outset of your career in gallantly doing your duty during the Indian Mutiny, and suffering from the effects of that wound ever since, you have not taken life easily or spared yourself the fatigue of special brain effort. In literature, in science, and in history you have made your mark on your time. You have opened up a new path in biography by your application of medico-psychology and studies in heredity in the elucidation of the lives of men who have made history. Showing how well you hit the mark, one of those studies of an Emperor of Russia was excluded from circulation in that country. These studies were not only scientific, but were also vivid and interesting to all intelligent readers. "The Blot upon the Brain" and "Through the Ivory Gate" will, we feel assured, hand down your name to coming generations.

In that department of medicine which you have made especially your own you have built up a world-wide reputation. The "Mental Affections of Children" is our standard work on developmental defects of the mind. Combined with your practical work in this department at Larbert, that book makes the profession of medicine and humanity your debtor. Your original papers on mental and nervous disease and on many other departments of medicine, scattered in many journals, are all of much interest and value. Your numerous translations and abstracts of important papers in foreign journals have been of great use to your readers, and showed that you were willing to undertake even the drudgery of science on their behalf. Many foreign scientific societies have shown their appreciation of your work by conferring on you their honorary membership.

Your life has been one of steady effort. Your stores of knowledge, through your extensive reading, have always been willingly placed at the disposal of your professional brethren. To few of their profession could they go with such a certainty of help for valuable references.

Above all those merits, your personal character, combining modesty and genial humor, earnestness and truthfulness, have won our respect and affection. We desire most cordially to express to you our wishes for a long and happy life of still further usefulness. We believe that you will always enjoy the happiness of the man who "keeps himself simple, good, sincere, grave, unaffected, a friend to justice, considerate and strenuous in duty."

Correspondence.

AN ATTEMPT TO OBTAIN A USEFUL READY-MADE SHOE.

BOSTON, March 20, 1905.

MR. EDITOR: The custom of wearing shoes is so universal among the western civilized nations that anything that promises to make less prevalent the all too common shoe deformities is worthy of consideration.

As Dr. Bradford said at a recent medical meeting, when shoes were under consideration, "The requirements of modern society demand different styles of shoes as well as varieties of clothing." A shoe suitable for an evening function would be a vicious walking appliance, and *vice versa*, a proper walking or working shoe would hardly be tolerated in the drawing room. Fashion will perhaps always dictate the evening shoe, but surely Reason may have a voice in shaping the footwear in which the greater number of hours are spent, in which nearly all the exercise is taken, and by which foot deformities are most readily produced.

There have always been sporadic lasts which have been less vicious than the commoner shapes, and which occasionally have had positive merit. They have usually been manufactured by concerns of only local reputation, and have often been transitory forms, which, after a year or two of advertising or a season or two of failure, have been given up by the manufacturer and unobtainable by the physician.

That there is a place, however, for a shoe which from the manufacturer's point of view shall not be so ugly as to be unsalable, and from the physician's point of view shall be built on such anatomical lines as to be as far as possible non-deforming, is undoubted.

The need for such a shoe is felt most keenly in an orthopedic clinic, and the requests are so frequent that the demand seems unquestionable. Custom-made shoes on good lines are still possible to the affluent, though exceedingly difficult to obtain. Ready-made shoes in non-deforming and respectable-looking shapes are nearly impossible to persons of limited means. Compromise on the more unessential points on the part of the physicians and an apparent willingness on the part of the manufacturers to listen to considerations other than those purely mercenary has resulted in the production of a series of lasts that represent a step toward the solution of the problem.

The number and the character of the men who have been interested in the conferences with the manufacturer and the last maker clear the scheme at once from any suggestion of mercenary profit on the part of any of the physicians.

The project had its inception in the following manner:

One of the members of the firm of the Sorosis Shoe Company was a patient with a mild grade of beginning flat foot. A light plate was successful in relieving annoying symptoms. A properly-made shoe would probably have accomplished the same result, but no such shoe was available. Personal considerations always stimulate more than need for general reform, and a series of conferences with many of the orthopedic physicians in Boston was held. It was an attempt to determine whether on the part of the doctors there was any unanimity of opinion as to essential features of non-deforming shoes, and if this was found to exist, to discover whether the manufacturer could produce such a shoe and put it on the market at a comparatively low price.

A unanimity of opinion on essential points was found to exist among the physicians, and the manufacturer considered the business end possible. A series of lasts

was produced and submitted. Various changes were made, and finally a shoe resulted that seemed better than ordinary ready-made shoes. A circular letter was now sent to most of the orthopedic physicians in the eastern cities, and the representative of the company given cards of introduction to these men. As far as possible the suggestions made were incorporated, and while no endorsement was asked or received, the attempt seemed to meet with general favor. These shoes have been given the practical trial of constant wear by some of the doctors and many of the hospital nurses, and in the main have proved satisfactory.

The company have offered to put this shoe on the market, and what is of far greater importance to keep it on the market unchanged, except with the approval of the physicians who have been interested in planning its lines. It is not yet even theoretically perfect, and it is hoped that future changes may improve it as the demands of use make these evidently desirable. If this concern keeps its promise the wide distribution of the company's stores will put a useful shoe within the reach of many.

The attempt to obtain such a shoe is perhaps worth reporting in order that the medical public may know at first hand how much or how little truth there is in any advertising which this firm may put out. The future alone will tell whether a want has been partially supplied or whether this last will follow most of the preceding good ones and either be discontinued or so altered as to lose such good points as it possesses.

It is to be distinctly understood that this letter neither directly nor indirectly implies a criticism of several other good lasts which with the help of various orthopedic men have been put on the market. Perhaps Boston has been especially fortunate in this respect. The value of this attempt seems to us to lie in the fact that if it proves adequate, this last or a better one will be obtainable at a moderate price in nearly all sections of the country and in some of the foreign cities.

Very respectfully yours,

ROBERT B. OSGOOD, M.D.

THE CLINICAL DIAGNOSIS OF DIPHTHERIA IN BOSTON.

HEALTH DEPARTMENT. BACTERIOLOGICAL LABORATORY,
BOSTON, March 27, 1905.

MR. EDITOR: The publication in the JOURNAL'S columns, Dec. 15, 1904, page 554, of an article by me on the average error in the clinical diagnosis of diphtheria in Boston has led to a rather widespread misapprehension, due in part to my failure to specifically forestall that misapplication of the figures given which I find has actually been made by many persons.

I stated that our records showed an error in the clinical diagnosis of diphtheria, such that about 38 per cent of the cases reported as diphtheria on clinical grounds alone are not really diphtheria at all.

The misapplication of this innocent statement which I have since found commonly made is to the effect that 38 per cent of the *total cases reported* as diphtheria in Boston are not really diphtheria, which is of course quite wrong.

The real facts are that from 70 to 80 per cent (varying from year to year) of the total cases reported as diphtheria are so reported on positive cultures obtained at the Boston Board of Health Laboratory or at the South Department.

It is therefore only the remaining 20 to 30 per cent (those reported on clinical grounds alone) of the total reported cases to which the 38 per cent discount can be applied; and this 38 per cent of 20 to 30 per cent is 7 to 12 per cent.

Since the difference between the right and the wrong way of using the 38 per cent discount is in the neighborhood of one third of the total cases reported, the correction of this misapprehension through your columns seems well worth while.

Very sincerely yours,

H. W. HILL, M.D.,
Director of Boston Bacteriological Laboratory.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 18, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Cerebro-spinal Menin-gitis.
New York	3,908,644	1,526	436	27.57	—	2.22	.52	4.72
Chicago	1,990,750	557	184	24.41	18.48	1.97	.36	—
Philadelphia	1,407,988	589	161	—	—	—	—	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	199	49	25.30	19.18	1.87	.19	.38
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	72	16	13.88	19.43	—	—	—
Boston	617,950	233	53	19.74	18.45	2.57	1.29	1.29
Worcester	136,925	36	11	8.33	13.88	—	—	—
Fall River	119,349	35	15	20.00	54.28	—	—	—
Lowell	104,402	38	7	10.52	18.41	—	—	2.63
Cambridge	101,988	30	6	16.67	26.67	—	3.33	—
Lynn	73,875	23	4	8.70	26.08	4.35	—	4.35
Lawrence	72,348	29	12	20.69	20.69	—	—	3.45
Springfield	72,020	18	4	16.67	5.55	—	—	5.55
Somerville	70,413	30	5	13.33	13.33	—	—	3.33
New Bedford	68,963	17	8	5.88	17.65	—	—	—
Holyoke	50,538	10	5	20.00	10.00	—	—	10.00
Brockton	46,601	8	0	12.50	—	—	—	—
Newton	39,310	8	5	12.50	12.50	12.50	—	—
Haverhill	39,061	10	1	30.00	40.00	—	10.00	—
Malden	37,265	10	2	—	10.00	—	—	—
Salem	37,188	7	1	14.30	28.60	—	—	—
Chelsea	36,499	10	5	20.00	20.00	—	—	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	22	9	22.72	13.63	—	4.54	—
Everett	30,209	7	4	—	—	—	—	—
North Adams	29,201	3	0	—	33.33	—	—	—
Quincy	26,798	9	1	22.22	22.22	—	—	11.11
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	10	1	20.00	20.00	10.00	—	—
Brookline	23,576	—	—	—	—	—	—	—
Pittsfield	22,870	—	—	—	—	—	—	—
Medford	21,956	3	1	33.33	—	—	—	—
Chicopee	21,692	7	4	14.30	14.30	—	—	14.30
Northampton	20,314	4	0	25.00	—	25.00	—	—
Beverly	15,807	5	—	20.00	—	—	—	—
Leominster	15,711	3	—	66.67	—	—	—	—
Clinton	15,694	3	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	5	2	40.00	—	—	—	20.00
Hyde Park	14,500	6	0	—	—	—	—	—
Newburyport	14,478	8	3	—	25.00	—	—	—
Woburn	14,315	3	2	—	66.67	—	—	—
Melrose	13,819	5	2	—	20.00	—	—	—
Westfield	13,809	9	1	11.11	22.22	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	9	0	44.44	11.11	—	—	—
Revere	13,609	1	—	—	—	—	—	—
Framingham	12,974	3	1	—	—	—	—	—
Peabody	12,466	—	—	—	—	—	—	—
Gardner	12,324	4	—	25.00	—	—	—	—
Southbridge	11,716	3	3	33.33	66.67	—	—	—
Watertown	11,575	3	0	20.00	20.00	—	—	—
Weymouth	11,350	1	1	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,634; under five years of age, 1,026; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 863; acute lung diseases 402, consumption 414, scarlet fever 37, whooping cough 20, cerebrospinal meningitis 87, smallpox 4, erysipelas 18, puerperal fever 26, measles 20, typhoid fever 36, diarrheal diseases 121, diphtheria and croup 66.

From whooping cough, New York 5, Chicago 11, Philadelphia 2, Baltimore 1, Lowell 1. From scarlet fever, New York 25, Chicago 2, Philadelphia 2, Baltimore 1, Providence 2, Boston 2, Lawrence 2, Quincy 1. From cerebrospinal meningitis, New York 73, Philadelphia 2, Baltimore 1, Boston 3, Lowell 1, Lynn 1, Lawrence 1, Springfield 1, Somerville 1, Holyoke 1, Quincy 1, Chicopee 1, Attleboro 1. From smallpox, New York 1, Chicago 3. From erysipelas, New York 8, Chicago 2, Philadelphia 1, Baltimore 1, Boston 3, Cambridge 1, Haverhill 1, Taunton 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending March 11, 1905, the death-rate was 17.2. Deaths reported 5,145; acute diseases of the respiratory organs (London) 187, whooping cough 132, diphtheria 58, measles 178, smallpox —, scarlet fever 37.

The death-rate ranged from 7.5 in Wallasey to 28.9 in Merthyr Tydfil; London 17.2, West Ham 15.9, Brighton 13.9,

Southampton 19.5, Plymouth 16.2, Bristol 15.7, Birmingham 16.7, Leicester 11.9, Nottingham 23.4, Birkenhead 8.1, Liverpool 20.4, Wigan 27.7, Bolton 17.0, Manchester 19.0, Salford 17.8, Halifax 15.4, Bradford 14.5, Leeds 15.9, Hull 20.4, Sheffield 16.8, Newcastle-on-Tyne 20.5, Cardiff 17.1, Rhondda 16.7, Grimsby 8.4.

METEOROLOGICAL RECORD.

For the week ending March 18, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 12	30.34	32	40	25	54	39	46	W	W	10	14	C.	C.	0
M. 13	30.40	28	36	21	46	56	51	N W	S E	8	9	C.	C.	0
T.. 14	30.40	27	33	22	61	55	58	N	E	10	4	C.	C.	0
W. 15	30.52	30	39	22	47	63	55	N	S W	10	8	C.	C.	0
T.. 16	30.32	35	44	26	56	52	54	W	W	12	8	C.	O.	0
F.. 17	30.23	34	40	28	58	54	56	N	S W	6	14	C.	C.	0
S.. 18	29.92	51	66	36	62	55	58	S W	S W	10	18	O.	O.	0
Av.	30.31		42	26			54							0

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Av. Means for week.

SOCIETY NOTICE.

SPECIAL TRAINS FOR THE PHYSICIANS *en route* TO PORTLAND, ORE. — Arrangements have been completed under which the Northern Pacific Railway will run three solid special trains through to the Pacific coast for physicians who will go West early in July to attend the coming sessions of the American Medical Association. The first special will run through from Chicago, leaving June 30 and reaching St. Paul July 1, proceeding west and stopping at Gardiner, Mont., for a five and one-half day tour of the Yellowstone National Park. A second solid special train will leave Chicago July 1 reaching St. Paul July 2, and proceeding west to Gardiner for a similar tour of the Yellowstone. A third special train will leave Chicago July 6, running through to Portland with stops at several important points. Accommodations in the first two specials are very nearly exhausted. Arrangements are now being made by numerous small parties for space in the third special, and it is possible that additional trains will be arranged for, if the demand for reservations continues heavy. Each special will be made up of standard Pullman equipment, with through dining cars and ample baggage accommodations. The third special will arrive in Portland the morning before the convention opens.

RECENT DEATHS.

JOHN PATRICK LOMBARD, M.D., M.M.S.S., died in Dorchester, March 21, 1905, aged forty-four years.

ALEXANDER F. H. GALE, M.D., of New York, died on March 17, while on a trip to Bermuda, undertaken in consequence of an attack of influenza. He was born in Elizabeth, N. J., and was thirty-five years of age. He was graduated from the College of Physicians and Surgeons, New York, in 1887, and at the time of his death was one of the assistant surgeons at St. Bartholomew's Clinic.

AMOS H. BRUNDAGE, M.D., a prominent physician of Brooklyn, N. Y., and one of the founders of the New York State Medical Association, died on March 19. He was born at Benton, Pa., in 1828, and studied medicine first at the University of Michigan and afterwards at the University of the City of New York, where he received the degree of M.D. in 1855. He practiced at different times at Ithaca and other towns in New York, and during the Civil War served as Assistant Surgeon of the Sixth Regiment, New York Cavalry. His son, Dr. Albert H. Brundage, toxicologist to Bushwick Hospital, was formerly President of the New York State Board of Pharmacy.

BOOKS AND PAMPHLETS RECEIVED.

Sixty-eight Reasons Why "Glasses did not give Relief." By George M. Gould, A.M., M.D. Reprint.

The Pathological Results of Dextrocularity and Sinistrocularity. By George M. Gould, M.D. Reprint.

Verhandlungen und Berichten des V. Internationalen Dermatologen-Kongresses. I. Band. Nord-Amerika. Bericht von Isadore Dyer in New Orleans. Reprint.

Department of the Interior. Bureau of Government Laboratories. New or Noteworthy Philippine Plants. By Elmer D. Merrill, Botanist. Manila. 1904.

Department of the Interior. Bureau of Government Laboratories. Biological Laboratory. Part I, Amebas: Their Cultivation and Etiologic Significance. By W. E. Musgrave, M.D., and Moses T. Clegg. Part II, Treatment of Intestinal Amebiasis (Amebic Dysentery) in the Tropics. By W. E. Musgrave, M.D. Manila. 1904.

Bacillus Pyocyaneus Septicæmia Associated with Blastomycetic Growth in Primary Wounds. By Joseph Rilus Eastman, M.D., and Thomas Victor Keene, M.D. Reprint.

Transactions of the American Otological Society. Thirty-seventh Annual Meeting, Atlantic City, N. J., July 11 and 12, 1904. Vol. viii, Part III. 1904.

A Popular Treatise on the Hair, its Growth, Care, Diseases and their Treatment. Designed for the Use of the General Public. By C. Henri Leonard, M.A., M.D. Illustrated. Detroit: The Illustrated Medical Journal Co.

Evolution of Psychiatry, or Progress in the Care and Treatment of the Insane. By William Francis Drewry, M.D. Reprint.

Diet in Health and Disease. By Julius Friedenwald, M.D., and John Ruhräh, M.D. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

How to Study Literature. A Guide to the Intensive Study of Literary Masterpieces. By Benjamin A. Heydrick, A.B. (Harv.) Third edition, revised and enlarged. New York: Hinds & Noble.

Removal of Calculus in the Ureter by a New Method. B. Edgar Garceau, M.D. Reprint.

Vesical Appearances in Renal Suppuration. By Edgar Garceau, M.D. Reprint.

La Cystite Chronique Rebelle. By Edgar Garceau, M.D. Reprint.

Ueber die Erzeugung intensiver Röntgenstrahlen für therapeutische Zwecke. Von Dr. J. Rosenthal, München. Reprint.

Immunity from Consumption. Cause and Treatment of Consumption. Massage Treatment for Consumption. By Cyrus L. Topliff. Reprint.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Dec. 1, 1904. Philadelphia and New York: Lea Brothers & Co.

Lectures on Diseases of Children. By Robert Hutchison, M.D., F.R.C.P. Illustrated. London: Edward Arnold. 1904.

Some Intellectual Weeds of American Growth. By George M. Gould, M.D. Reprint.

Dextrality and Sinistrality. By George M. Gould, M.D. Reprint.

The New Ophthalmology and Its Relation to General Medicine, Biology and Sociology. By George M. Gould, M.D. Reprints.

The Reception of Medical Discoveries. By George M. Gould, M. D. Reprint.

Normal Histology and Microscopical Anatomy. By Jeremiah S. Ferguson, M.Sc., M.D. Illustrated. New York and London: D. Appleton & Co. 1905.

The Nose and Throat in Medical History. By Jonathan Wright, M.D.

The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By William Henry Battle, F.R.C.S., and Edred M. Corner, M.B., B.C., F.R.C.S. Illustrated. Chicago: W. T. Keener & Co. 1905.

The Harvard University Catalogue, 1904-5.

Shall We Remove All Fibromata of the Uterus on Diagnosis. By Thomas B. Eastman, M.D. Reprint.

Certain Associated Disorders of the Hepatic and Pancreatic Ducts and Upper Small Intestine and Their Treatment by Drainage of the Gall-Bladder. By Thomas B. Eastman, A.B., M.D. Reprint.

La Surdité. By Dr. Marcel Natier. Reprint.

Quatre cas de Surdité déjà ancienne traités sans succès a plusieurs reprises. By Marcel Natier.

Transactions of the American Gynecological Society. Vol. xxiv. For the year 1904. Philadelphia: Wm. J. Dornan. 1904.

Aequanimitas, with Other Addresses to Medical Students, Nurses and Practitioners of Medicine. By William Osler, M.D., F.R.S. Philadelphia: P. Blakiston's Son & Co. 1904.

Class-Work in Practical Anatomy. By R. J. Terry, M.D. Reprint.

Address.

THE HISTORY OF THE BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY FOR TWENTY-FIVE YEARS.*

BY WALTER CHANNING, M.D., BROOKLINE.

It is said that nations, like individuals, by some mysterious law of nature are born into the world, and pass through various stages of growth after a somewhat similar process of evolution. Such is the case also with social institutions like medical societies, if such a term as social can fitly be applied to them. First they come into the world, poor little weaklings, fed by hand, unable to stand alone, and liable to be carried off by any of a score of infantile complaints. Then they begin to take notice, lift up their heads and look about to see what is going on around them. Later they cut a tooth or two, stand on their own feet as well as they can, and feebly try to do something themselves. Thus puberty is reached and, if nothing happens, a more or less robust adolescence. Happy and rare the society that attains an active, happy and useful adult life,—so many die of premature old age, and never reach the period of physiological senility. Is any sight sadder than that of a once prosperous society, which has the dry rot and is slowly disentegrating and dropping to pieces like an old hulk tied to a wharf? We can imagine such a society holding occasional meetings to which a few members bound to the traditions of the past come with true hearts but doleful countenances. The atmosphere is gloomy, the papers heavy, the discussion drags. The only cheerful moment is like that at a funeral — the last, when all is over.

Such, I rejoice to say, is not the status of this society; after twenty-five years of active existence, it assembles here to-night, youthful in spirit, supple, full of vigor and at the very height of its career of usefulness.

Perhaps we may attribute a part of its success to the fortunate time in which it was born. During these twenty-five years, progress in all branches of medicine has been tremendous, and psychiatry has felt the impulse of the wave and been carried far along toward the attainment of work of a dignified and scientific character. This has been in part social in its broad sense, and in part medical, for we must not forget that both the alienist and neurologist have the problem of the *care of the insane* to study, as well as that of mental and nervous disease. Fortunately, the era of insane hospital construction, having reference especially to the first of these problems, was, in many respects, pretty well settled in the earlier years of our existence, and the new McLean Hospital stands to-day as a very practical and ideal solution.

All honor to its builder, our fellow member, Dr. Edward Cowles.

The time was also ripe, in the general progress of medical events, for the scientific study and investigation of mental diseases in this part of the world, as well as in others, and so, subtly and unconsciously, strong under-currents of energy and activity were at work to lead us here, in our limited sphere, to take however humble a share in the forward movement.

Dr. C. L. Dana of New York has said, in reference to this subject, in a paper read last year before our society:[1] "There have come of late years much clearer ideas of the nature and relationships of the insanities. The analysis of symptoms has been keener, and clinical study has been pursued with scientific methods and with an especial enthusiasm. There has been, in fact, a kind of intellectual renaissance in psychiatry."

Dr. Hoch has also said in regard to the same subject:[2] "The new impulse which is everywhere felt in the study of psychiatry depends largely upon the fact that the necessity of careful clinical observation has become more thoroughly appreciated. We have passed through a period in which the chief salvation was sought in the study of anatomy and pathological anatomy of the nervous system, and in which clinical studies were more or less neglected. This tendency has now been overcome, while the anatomical studies are by no means lost sight of. In the clinical studies which were undertaken the necessity of a more accurate analysis soon made itself felt, and this led to the development of careful tests and of the adaptation of the psychological and physiological experimental methods to the special problems of psychiatry."

Coming now more directly to the subject of my paper, "The History of our Society," we must begin with the day of its birth, one cold, inclement day in January, 1880. The first meeting of the society was called by the writer and held at the house of that grand old man of our alienists, Dr. George F. Jelly. The charter members, nine of whom were present at the first meeting, were Drs. J. B. Ayer, Walter Channing, Edward Cowles, J. H. Denny, T. W. Fisher, C. F. Folsom, N. Folsom, George F. Jelly, G. H. M. Rowe, C. A. Walker, S. G. Webber and J. H. Whittemore. The writer was asked to state the objects for which the meeting had been convened, which he did by first alluding to the number of alienists practising in Boston, and the need that existed of their getting together and discussing subjects which were of special interest to them, but rarely touched on at general meetings. He also alluded to the few opportunities there were for getting access to mental and neurological journals. It seemed desirable that there should be some plan of mutual coöperation whereby those present might form a society for occasional meetings to discuss questions in which they were interested, and take journals to be sent around from house to house. It was the consensus of opinion that while the primary object of the society was to discuss medical subjects, its meetings should be informal and social, to as great a degree as pos-

* Read at the twenty-fifth anniversary meeting, January 19, 1905.

[1] The Partial Passing of Neurasthenia.

[2] A Review of Some Psychological and Physiological Experiments done in Connection with the Study of Mental Diseases. Psychological Bulletin, June 15, 1904.

sible. The writer was and now is an advocate of the social side of the meetings, and attributes much of the popularity and success of the society to the opportunities afforded for the beneficial relaxation of social intercourse. Occasionally discussion has arisen in which the doing away altogether of anything in the way of supper has been advocated, but the writer is sure the history of this society proves that the cockles of the heart must be warmed by food, as well as the cells of the brain stimulated by scientific pabulum. An empty stomach and full brain will not bind men together in friendship for any length of time, and he hopes the experience of the past twenty-five years will have a potent influence upon what may be done during the coming twenty-five years. The physician must not only know himself, but his brother as well if he is to get the finest and best there is in professional life, a truth I fear we only half realize in our staid Boston medical societies.

The name adopted at the first meeting was the "Boston Medico-Psychological Society."

At the May meeting in 1880 it is interesting to note that Drs. Edward Jarvis, J. P. Bancroft, and G. G. Tarbell, all no longer living, were elected honorary members. It was voted at this meeting to take a *new* journal called the *Journal of Mental and Nervous Diseases*, and it was also voted that the journals which the society took should be deposited at the Medical Library.

At the December meeting, 1880, an effort was made to amend the constitution so that there should be a permanent instead of temporary chairman, but the motion was lost; another one, that it was undesirable to provide elaborate suppers, but optional to furnish simple ones, was adopted.

At the meeting in November, 1881, six members only were present and the society showed symptoms of early and premature death from inanition. It was suggested that it should transfer its active functions, except so far as they related to its action as a book club, to the Psychological Section of the Suffolk District Medical Society, then just organized. Several regarded this proposition with favor, thinking there would be more members and greater interest, and it was a professional duty to join the proposed section. Accordingly, it was resolved that the Boston Medico-Psychological Society retain its organization as a book club only, transferring its active functions to the Psychological Section of the Suffolk District Medical Society, and that the succeeding meeting be assigned to the changing of the by-laws to conform to this vote. At the following meeting the matter of so doing came up, and after considerable discussion ended in amending Article IV of the by-laws so that meetings, instead of being held the first Thursdays of each month from October to June inclusive, should be held on the evenings of the first Thursdays in November, February and May, or should be called by the secretary and two members. From this action it is evident that though at the previous meeting the society seemed about to give up its lease of life and pass on to the world where defunct medical societies go, it had more vitality than was supposed and started in with fresh vigor. The Psychological Section of the Suffolk District Medical Society, of which Dr. G. F. Jelly was secretary, held one meeting only; there was evidently not a large enough field for the two kindred societies.

At one of the meetings of this time, Dr. Denny, who was one of the most prolific speakers that ever belonged to the society, made a motion that the discussion of papers should occasionally be continued to the next meeting, but this suggestion was negatived, which was perhaps fortunate, as we might still be discussing the papers of years ago, or putting off the discussion of others to the future.

At this time the total membership was seventeen, a number of new members having been elected and others having withdrawn.

In September and November, 1883, the secretary said that while the society was on a sound financial basis, the meetings had fallen off in attendance, and he thought it expedient to take steps to either infuse new life into the society or merge it into the Psychological Section of the Suffolk Medical Society as formerly proposed, or give it up altogether. It was agreed that more frequent meetings would be desirable to try as a remedy, and accordingly in December it was voted to hold meetings monthly as previously, and this has been done from that time to this. What seemed like a further decline was only temporary. Since then puberty has passed and adolescence reached without any break in the society's steady progress.

At the February meeting in 1891, it was thought the time had come to place the society on a firmer foundation than it had been in regard to its constitution and by-laws, and therefore a committee on reorganization was appointed. The suggested changes which included the annual election of a president were adopted at a later meeting, and the first president was elected in 1892.

The first neurologists elected into the society were Drs. Knapp and Putnam. In the nineties the number steadily increased and materially changed the character of the contributions presented at the meetings, also producing a considerable amount of clinical material. As a result of this close alliance of brothers-once-removed, it was voted in 1901 to change the name of the society, from which time it has maintained its present title.

There is no question that increased activity and interest have been aroused by the addition of such able, progressive and aggressive men as my brother neurologists, and between the two, one twin supplementing the other so to speak, much in time should be worked out of positive value. As will be seen in another place, both sections of the society have worked side by side in what has been accomplished in the solution of public questions. The fact that the society began with twelve members and now has sixty

with some on the waiting list, is an indication of how the society has grown.

THE NUMBER AND CHARACTER OF CONTRIBUTIONS.

The total number of contributions has been approximately 264, but it is impossible to give the exact total owing to the fact mentioned elsewhere that a number of cases reported are referred to only in general terms as so many cases presented or reported. We might classify the formal contributions presented as follows: Papers on psychiatry, 86; neurology, 79; medico-legal cases, 12; hospital construction, 3; general medicine, 5; laws pertaining to the insane, 8; cases reported, 65; miscellaneous minor contributions, 6.

A study of the contributions of the society give but a meagre idea of the amount and character of the work that has been done individually by its members. During the first dozen years of its existence the records were pretty fully written out and for those years present an epitome up to a certain point of the ideas entertained as to the care and treatment of the insane and of mental disease in general. The writer regrets that after this time, the records have been somewhat fragmentary, and that often the papers read are mentioned only by title and there is no record of discussions, yet from the latter much valuable information may be obtained. Many cases also are not even reported by name, so that as has been said it is impossiple to give an accurate list of all the contributions. Cases have been reported in medical journals with accompanying discussions, but references are often not given in the records, so that for purposes of historical research, records as brief as those of recent years must be regarded as defective. There may be a difference of opinion as to whether or not it is desirable to write out records with a fair degree of completeness, but if they are to have a genuine historical value, it seems to the writer that this should be done.

Naturally, during the early years the papers were largely, though not wholly, of a psychiatric character. A considerable number of medico-legal cases were reported, which if they were published separately would make an interesting volume in themselves.

Among other cases presented was one of "Aphasia Complicated with Insanity," by Dr. C. P. Bancroft; "Cases Illustrating the Connection of Insanity, Hallucinations and So-called Nervous Exhaustion," by Dr. C. F. Folsom; "Recovery of a Case of Melancholia after Two and a Half Years' Duration," by Dr. J. B. Ayer; "Case of General Paralysis Associated with a Limited Meningo-Encephalitis," by Dr. G. T. Tuttle; "A Case of Acute Chorea with Profound Mental Disturbance," by Dr. H. R. Stedman; "Two Cases of Paraphasia with Autopsy," by Dr. S. G. Webber; "Case of Monomania," by Dr. W. A. Gorton; "Two Cases of Acute Mania," by Dr. C. F. Folsom; "Case of Lead Poisoning," by Dr. G. F. Jelly; "Case of Cerebral Injury from Incised Wound of the Scalp," also by Dr. Jelly; "Case of Profound Mental Stupor," by Dr. W. B. Goldsmith; "Cases of Melancholia considered with Reference to Prognosis," by Dr. T. M. Turnbull; "Two Unique Cases of Insanity," by Dr. T. W. Fisher; "Case of Epilepsy of Forty-five Years' Duration," by the writer; "Cases of Alternating Insanity," etc., by Dr. E. B. Lane.

Views entertained as to mental diseases were indicated by papers on "Folie du Doute," by Dr. Edward Cowles; "Hebephrenia," on which Dr. Stedman wrote a paper in 1886; "Notes on the Classification of Insanity in 1887, being a careful study of the so-called 'Saratoga Classification,'" by Dr. Cowles; "The Insanity of Doubt," by Dr. Knapp; "Case of Neurasthenia with Insistent Ideas, Obscure for Some Years, Leading to Melancholia," by Dr. Cowles; "Evolution of Paranoia," by the writer in 1890; "Acute Mania, its Clinical History and Pathology," by Dr. William Noyes in 1891; "Case of Paranoia," by Dr. W. A. Gorton in 1891; "Hypochondriacal Insanity with Especial Reference to its Classification," by Dr. E. P. Elliot, in 1892.

The papers of neurologists and those of strictly neurological character became more frequent in the nineties; Dr. Putnam read one in 1891 on "The Consideration of the Pathology of Epilepsy with special reference to operation in traumatic cases." Dr. E. G. Brackett the same year gave a paper on "Neurasthenic Spine"; Dr. G. L. Walton, "Eye Strain as a Cause of Cephalalgia"; Dr. J. A. Jeffries, "Paralysis of the Ocular Muscles"; Dr. R. T. Edes, "Temporary Paralyses." In 1894 Dr. Morton Prince, "A Case of Hysteria presenting some Unusual Phenomena with remarks on the new Theory of Hysteria." In 1895, Dr. J. J. Thomas, "Innervation of the Pharynx"; Dr. G. L. Walton, "Multiple Neuritis"; Dr. E. W. Taylor, "The Significance to Pathology of the Neuron Theory"; Drs. Morton Prince and Russell Sturgis, "Phobopsychoses." In 1898 Dr. P. C. Knapp read a paper entitled "Are Acute Psychoses One Disease." In 1901 Drs. Walton and Paul, "Astereognosis in Cerebral Disease with illustrative cases." In 1902 Dr. G. L. Walton, "Localization of the Reflex Mechanism." In 1902 Dr. H. R. Stedman, "Pathology of Dementia Precox." In 1904 Dr. J. J. Putnam, "Notes on the Course and Prognosis of Certain Psychological Neuroses of Traumatic and Quasi-traumatic Origin."

During the last ten years many other valuable papers have been read by both alienists and neurologists. A complete list of all contributions is appended with date and place of publication in the form of a bibliography; but is naturally too long for detailed mention in this place.

Mention should also be made of papers written from a clinico-pathological point of view which in their ways are models of clearness and accuracy. In 1897 the first of these was one by Dr. August Hoch entitled, "An Acute Case of Insanity with Definite Pathological Changes in the Internal Structure of the Nerve Cells"; the second one was by the same author, "A Study of Psychiatry," read in 1900; the third was by Dr. Adolph Meyer entitled, "Parenchymatous Degen-

erations of Central Nerve Elements or Central Neuritis." The fourth was read in 1901 by Drs. Harrington and Worcester entitled, "Cerebrohematrophy in Adults with Hemiplegia and Aphasia." The fifth by Dr. E. W. Taylor in 1903, "Some Unusual Inflammatory Affections of the Brain and Cord with Special Reference to Poliencephalomyelitis.".

Special mention should be made of papers read by physicians from other cities who have come on invitation to present contributions to the society. These in themselves give some idea of the progress that is being made in nervous and mental diseases. The first of these papers was read in February, 1892, by Dr. C. K. Mills and was entitled "Disorders of Pantomime occurring among Aphasics studied particularly with reference to their medico-legal bearings." In March, 1893, Dr. C. L. Dana read a paper entitled "Modern Pathology and Nervous Diseases with Therapeutical Deductions." In March, 1895, Prof. Josiah Royce read a paper entitled, "Some Observations of the Anomalies of Self-Consciousness." In March, 1896, Dr. Richard Dewey read a paper entitled, "A Comparative Study of Caserio and Prendergast, the slayers respectively of President Carnot and Mayor Harrison, with some consideration of the proper disposal to be made of the dangerous crank." In January, 1903, Dr. Joseph Collins read a paper on "Syphilitic Pseudo-Tabes, with remarks on the differential diagnosis of Tabes." In March, 1903, Drs. L. P. Clark and T. P. Prout read a paper on the "Study of the Brain in 18 Cases of Epilepsy." In January, 1904, Dr. C. L. Dana read a paper on the "Partial Passing of Neurasthenia." In March, 1904, Dr. B. T. Burley read a paper on "Bilateral Facial Atrophy with report of a case and its treatment by subcutaneous injection of paraffine." In October, 1904, Dr. Pierre Janet read a paper entitled "Les Crises de Psycholepsie." In December, 1904, Drs. L. P. Clark and A. S. Taylor read a paper on "Nerve Suture and Anastomosis in the Treatment of Peripheral Palsies; facial, obstetric palsy (Duchenne, Erb)."

At the December meeting in 1890 the society showed its desire to keep abreast of what was being done in neurology by arranging with Dr. H. H. Donaldson, Professor of Neurology in Clark University, for a course of six lectures on cerebral localization, to which the profession in general was invited.

PUBLIC WORK ACCOMPLISHED.

If a medical society has something to *do* as well as to *say*, the chances are that it will not only be more useful, but will stand a better chance of an interesting and active life. Our society has been fortunate in this respect. Composed as it has been largely of those who in some way have had the care and treatment of the insane in their hands, already spoken of above, a certain portion of their work has a distinctly public side which does not, to the same degree, characterize that of members of other societies. It has happened that during the twenty-five years of the existence of our society, a number of important changes in regard to the care of the insane have come about partly through its instrumentality. These have first been discussed at our meetings, and later committees have advocated them before the legislature with a view to passing appropriate laws for putting the ideas evolved into practical operation.

At the April meeting in 1881 we have the first mention of the interest of the society in legislation for the benefit of the insane. On this occasion Dr. Rowe read a paper entitled "A Bill now Pending before the Legislature Relative to the Commitment of Insane Persons to Lunatic Hospitals." Dr. Rowe at that time believed in a greater degree of latitude in regard to sending patients to hospitals than he does at present. He said "The City Hospital had always endeavored to receive as great a variety of cases as possible. Some cases of mental disease had been received, there being at that time three cases in the hospital. Mild cases could be received and it was contemplated in the future to possess an isolated building for the temporary care of cases of insanity, so that the City Hospital may treat all diseases but smallpox and yellow fever."

At the April meeting in 1888 the writer presented a paper on "Massachusetts Lunacy Laws," and asked the questions, "Do our Massachusetts lunacy laws need revising? Has the time arrived for such revision? Shall a committee of this society be appointed to prepare a revision of the existing laws and draw up new laws establishing a commission in lunacy to serve as a basis for future legislation?" It was the opinion that these laws might be improved, and a committee was appointed to consider the advisability of revising them. At a later meeting the committee presented its report. It was stated in the discussion which followed, that the Board of Lunacy could not be separated from the Board of Charity, and for various reasons the report was laid on the table. At a later meeting it was again taken up, but in view of the appointment of a medical inspector no further action at that time was deemed necessary.

In 1895 the subject of the separation of the institutions for the insane from the penal institutions in the city of Boston was taken up, and a committee was appointed to confer with the mayor on the subject. To the credit of this committee as well as the society and partly as the result of their efforts the division was finally brought about, and two members of the society were chosen as members of the new board of trustees of the Boston Insane Hospital.

In January, 1896, a committee was appointed to consider the expediency of inquiring into the present method of supervising the interests of the insane in the commonwealth; to petition for a committee of inquiry to be appointed by the governor to make a study of the questions involved, and to report to the next legislature; to petition the legislature for a change in the present Board of Lunacy and Charity and the formation of a commission in lunacy. A com-

mission was appointed by the governor to investigate the questions here referred to, and at the May meeting of the society in 1896 a committee was appointed to appear before this commission.

In January, 1897, a committee was appointed to confer with a committee of the Bar Association in regard to the matter of medical expert testimony.

In May, 1897, a committee was appointed to advocate the views of the commission, above referred to, to investigate the charitable and reformatory interests of institutions in the commonwealth, and to promote the necessary legislation. At a later meeting the report of this committee was endorsed and the appointment of a state commission in lunacy recommended.

At the December meeting in 1897, a committee was appointed to draw up resolutions of protest concerning the methods under which the census of the insane was being made by the Director of the National Census having charge of these special statistics.

In January, 1900, a committee was appointed to take such action before the legislature as would promote state care of the insane. The committee appointed to carry out this proposition put in much work, appealing to the entire profession in the state and getting a unanimous opinion in favor of state care of the insane and a State Board of Insanity, and was instrumental in getting the necessary legislation to bring about these reforms. The society now has the satisfaction of knowing, that not only has the state had an admirable board of insanity with an able executive officer for several years, but also under its judicious and skillful management, the last insane pauper, in compliance with the law of state care, has been removed from the almshouses. When we consider what an immense gain it is for our insane to have hospital treatment substituted for almshouse care, our society may well congratulate itself on its share in promoting this change.

At the May meeting, 1902, a committee was appointed to confer with the governor in reference to a bill relating to the working hours of nurses.

In October, 1902, a committee was appointed to investigate the matter of the desirability of separate provision for the female criminal insane.

At the January meeting, 1903, a committee was appointed to appear at the State House for the purpose of opposing a bill then before the legislature which was inimical to the state care of the insane.

At the November meeting, 1903, a committee was appointed to report on the hospital observation of suspected cases of insanity under arrest. During the winter the efforts of this committee resulted in having the proposed amendment made into a law whereby persons under indictment for crime and suspected of insanity can be sent to a hospital for observation.

At the December meeting, 1904, a committee was appointed to investigate the matter of a reception observation hospital and report at a future meeting.

That we have work to do of a public nature still before us, which we should endeavor to accomplish ere we reach the sere and yellow leaf of society existence may well make us serious, even in the midst of our self-gratulations. We should never rest satisfied until we have a proper reception hospital for mental cases in the city of Boston. A long time may be needed to bring it about, but we have done other things almost as difficult. A still greater and more important duty, and one which we owe to ourselves quite as much as to the public, is the reform of medical expert testimony. This, too, is a very hard problem to deal with, but I believe that it can be done successfully, if a society like ours attacks it as a unit, and does not drop it until it is an accomplished fact. But we have got to be in dead earnest and fight the battle to a finish.

DEATHS.

While the society has such a long list of active, able and progressive members, it also mourns the loss of several of equal ability. Of the twelve mentioned as the charter members, three have died, — Dr. Norton Folsom, Dr. C. A. Walker and Dr. J. H. Whittemore. Dr. Folsom was at one time superintendent of the Massachusetts Hospital. Dr. C. A. Walker was for a long time superintendent of the Boston Insane Hospital and for many years identified with the interests of the insane in Boston and Massachusetts. Dr. Whittemore, for some time superintendent of the Massachusetts General Hospital, was one of the most active of the original members, with unusual energy and charm of manner. His unselfishness and patience and courage in suffering, during a long and fatal disease, made him a marked man in the society.

At the December meeting in 1885, resolutions were passed on the sudden and unexpected death of Dr. John W. Sawyer, superintendent of the Butler Hospital for the Insane, in which it was stated that "The medical profession has lost a most valuable member; the hospital over which he presided a careful, able and conscientious officer, and the insane, an untiring, faithful and trusted friend."

At the April meeting, 1888, a committee was appointed to prepare resolutions on the death of Dr. W. B. Goldsmith. Although this was seventeen years ago, those who were fortunate enough to know Dr. Goldsmith still regret his loss as a serious and untimely one. "Dying at the early age of thirty-four," as was stated in the resolutions, "when it seemed that a long life of usefulness had only begun, he had already accomplished by his great attainments and conscientious work that of which older men might well be proud."

In May, 1892, resolutions were recorded on the death of Dr. J. A. Jeffries, a brilliant young man of whom it was said, "Although neurology was only one of the studies in which he was interested, he had already done work worthy to be compared with his investigations in bacteriology and ornithology."

At the November meeting of the same year

resolutions were adopted by the society on the death of Dr. C. F. Carter.

At the meeting of January, 1897, resolutions on the death of Dr. E. P. Eliot were presented to the society. "His rare mental gifts, clear perception, retentive memory and scientific inclinations" were spoken of "as admirably fitting him for his profession."

At the May meeting, 1899, a committee was appointed to take early and fitting recognition of the death of Dr. W. A. Gorton which had occurred since the previous meeting, and similar action was taken in the case of Dr. Russell Sturgis, Jr., whose death was stated to have occurred the previous summer. In the letter sent to Mrs. Gorton by the society, Dr. Gorton's "ability, his manliness, his honesty and clearness" were spoken of; "also the influence his character had in courts where his opinion was sought; the clearness of his judgment and unbiased testimony had had much influence. The self-depreciation which was one of his marked characteristics did not permit him to realize his importance to the insane at large."

"The clear insight and genuine thoroughness of investigation," which characterized Dr. Sturgis, were spoken of as "guiding him in a field which involved some of the deepest and most subtle problems that were set a physician. Regretably short though his career was, it was still long enough to enable him to contribute by his labors to the general welfare of humanity."

At the January meeting, 1902, resolutions were presented on the death of Dr. W. L. Worcester. The society recorded that "in his death they regretted the loss of a physician and of a specialist in psychiatry and pathology, who gave his life devotedly and unselfishly to his work even to the point of sacrificing his life in the pursuit of his investigations."

PRESIDENTS.

1892, Walter Channing; 1893, T. W. Fisher; 1894, J. J. Putnam; 1895, C. F. Folsom; 1896, W. A. Gorton; 1897, Edward Cowles; 1898, G. F. Jelly; 1899, R. T. Edes; 1900, H. R. Stedman; 1901, P. C. Knapp; 1902, C. P. Bancroft; 1903, G. L. Walton; 1904, G. Alder Blumer; 1905, Morton Prince.

SECRETARIES.

1880–1885, Walter Channing; 1885–1886, G. T. Tuttle; 1886–1890, P. C. Knapp; 1890–1898, H. C. Baldwin; 1898–1904, J. W. Courtney; 1904–, W. E. Paul.

THE FUTURE.

What the progress of the society will be during the next twenty-five years is naturally of the deepest concern to us all. The path which neurology may follow has been well indicated by Dr. Putnam. He has said in a recent paper:[3] "And yet, in spite of all that has been accomplished, there are abundant reasons for the opinion that the very successes of the anatomical principle have thrown unduly into the shade the claims of another mode of approaching the problem of disease, without the aid of which anatomical research must prove inadequate to the task which has been imposed upon it. For this latter principle, which emphasizes the importance of recognizing, in disease, the signs of more or less widespread modifications of function of the organism as a whole, the designation of 'physiological principle' is appropriate.

"The argument is not that the anatomical principle is faulty because it has failed to accomplish all that had been hoped of it as regards the discovery of the essential nature of disease, but that, under it, certain local aspects of the disease process are made the exclusive subjects of research, and that the mind is thus turned aside from a recognition of the fact that an equally important object of study is the modification of functional activity, local or general, which marks the efforts of readjustment on the part of the organism to the effects of the primary disturbance. Such a study as this cannot be adequately made without a thorough use of physiological methods, or the clinical methods inspired and guided by physiological conceptions, the term 'physiological' being understood as including all means of research which throw light upon the mechanism of the processes of life. Psychological and chemical investigations belong pre-eminently in this category."

And Dr. Cowles, with his keen and brilliant scientific insight which penetrates so deep into the problems of psychiatry, throws light from another point of view on the trend of things when he says:[4] "In the study of disease it is a fundamental proposition that, according to the principles of general pathology, when a disease-form is definitely recognized, we must assume as corresponding therewith a definite underlying disease-process. This distinctly implies, from the point of view of the pathological anatomist, structural changes. But it is impossible to explain mental disease-forms and mental symptoms in terms of structure because we have no knowledge of the relation between normal mental functions and the anatomical arrangements of the brain."

He goes on further to say:[5] "It is the disorders of these processes of metabolism that have a large part in the derangements of nutrition and the dependent functions of the nervous system; and it is to such derangements that disorders of the mental functions may be due in many cases. The methods of study involve the application of the latest results in the remarkable progress that is being made in physiological and pathological chemistry."

The remarks of Drs. Putnam and Cowles indicate to my mind the trend of neurology and psychiatry in the coming years. The more thorough use of physiological methods will result in showing, far more clearly than hitherto, the course, etiology and outcome of the neuroses and

[3] The Value of the Physiological Principle in the Study of Neurology. American Medicine, December 17, 1904.

[4] Annual Report of the McLean Hospital, 1901.

[5] Annual Report of the McLean Hospital, 1902.

psychoses, as well, as in many cases, their interdependence.

Ultimately I believe we shall become one united branch of medicine, not working always at the same problems, but using alike clinical and experimental methods of rigid and scientific accuracy. May your historian at our fiftieth anniversary fitly chronicle this consummation most devoutly to be wished for!

Original Articles.

SURGICAL TREATMENT OF NEPHRITIS.*

A Résumé.

BY PAUL THORNDIKE, M.D., BOSTON.

I TAKE it that my part in this evening's program should consist of an outline of the work which has been done in the surgery of nephritis, of a statement of the conditions existing in that work at the present writing, and possibly of a few remarks as to what those existing conditions indicate in the way of possible future progress. In the few moments allotted to my paper such an outline must be a very brief one, and we must trust that the many important details necessarily overlooked in it may receive proper expression in the discussion to follow. It is only in the last quarter of a century that diseases of the kidney have been combated consistently by surgical means, and up to the most recent date surgeons have required most definite and well localized symptoms [pain, hemorrhage, etc.], before venturing to attack the kidney. Within a few years, however, has come a development which is possibly changing all this, and many forms of nephritis which have depended in the past solely upon the physician for their palliation or cure are now being operated upon by the surgeon. This has come about something as follows. In the *Lancet* for Jan. 4, 1896, Mr. Reginald Harrison published three cases of albuminuria which he had cured by operation. His operation consisted in approaching the kidney through the loin and incising its parenchyma. He believed his success with these cases was due to the relief of renal blood tension afforded by his incisions. His operations were done for conditions other than a nephritis, but none the less resulted in apparent cures of undoubted nephritis by nephrotomy. Harrison incidentally noted that operations upon one kidney benefited the functionating power of the other. In the same year Newman published two cases illustrating the beneficial effect of the nephropexy upon albuminuria. Then in 1899 Tiffany of Baltimore reported a case of nephritis of the chronic type associated with marked nephralgia, and the condition was successfully combated by incision through the capsule and into the parenchyma. In the same year Israel reported fourteen similar cases in which hematuria and nephralgia were marked symptoms and were relieved by operation; but these cases were operated upon, not because of the nephritis which was definitely present in twelve of them, but for one or the other or both of the two striking symptoms, pain and hematuria. Still in the same year Pousson collected and reported twenty-five similar cases including Harrison's and Israel's and added two more of his own. Other papers followed from Naunyn, Ferguson, Malherbe and Legueu, Pousson, Mongour, but although many of these articles contain significant sentences and hints showing the trend of thought which these cases were awakening in the minds of the writers and of other surgeons, it remained for Edebohls to publish series of cases in which operations were performed with the sole aim and object of improving or curing cases of chronic nephritis. Whatever the future shall develop it is to the publications of Edebohls, the first of which appeared April 22, 1899, that the profession owes its inspiration for the work now being done in this direction.

Technic. — Edebohls' technic consists either of a nephropexy by his own method, which amounts to a partial decapsulation with a fixation of the kidney to the inner surface of the abdominal wall, or to a complete decapsulation, the kidney being replaced in its bed of fat without fixation to the abdominal wall. The writer has heard him state emphatically that he performs fixation only in those cases where Bright's disease affects the kidney which is movable enough to present symptoms due to its mobility, deeming that in the lesser degrees of renal mobility enough fixation is furnished by the infiltration which takes place about a kidney which is decapsulated and then replaced in its bed of fat. Regarding operations upon only one kidney, we can, at present, say only that it seems to be the prevailing view that a true nephritis occurs on both sides if at all. Guiteras examined the autopsy records of five hundred persons who were said to have died of a chronic nephritis and in no case was the disease confined to one side. Making all due allowance for the fact that operation upon one kidney undoubtedly influences the functionating power of the other, it still seems as though the indication is to operate on both sides except in such cases as present a complication of renal symptoms pointing to one organ or the other; or, in other words, except in such cases as present something else than the mere existence of a nephritis as an operative indication.

Results. — A year and half a ago the writer had the pleasure of hearing Dr. Edebohls speak of his work during the discussion of Guiteras' paper read before the American Association of Genito-Urinary Surgeons. At that time there were fifty-nine cases operated upon, and of these eleven could safely be considered as complete and permanent cures. The standard which he set himself in watching his cases was this: The patients must be free from albumin and casts for six months continuously, and a number of his cures had been watched for much longer periods of time. He spoke with a conservatism

*Read at the meeting of the Boston Medical Library in Conjunction with the Suffolk District Branch of The Massachusetts Medical Society, Medical Section, Dec. 21, 1904.

which could not fail to make a favorable impression upon his hearers. He said in effect that he realized it would be from two to five years more before we can know just what the operation or its modifications can accomplish in chronic nephritis, and that he was making an honest effort to keep down his enthusiasm and to study the progress of his cases fairly, but that such uniform improvement had followed his operations, often in such striking ways, that it was hard to be moderate in his estimate of the great value of the procedure. He said, for instance, that sometimes patients who before operation were excreting less than 100 grs. of urea in the twenty-four hours, would raise this amount to 500 grs. at the end of four or five weeks after the operation. Headaches and backaches were relieved and the circulation and heart's action greatly improved. Guiteras, in his paper read at this same meeting, enumerated from one hundred cases collected, 16% of which had been spoken of as cured, 40% as improved, 11% unimproved and 33% had died. Of these patients the ones which had proved most unfavorable for operation were those suffering from a chronic, diffuse nephritis. Of these 75% had died, 50% at once and 25% at varying periods a little later. Many of these, however, were *in extremis* and were suffering from a general anasarca at the time operation was attempted.

Cases Suitable for Operation. — Cases which have been deemed suitable for this operation are, (1) cases with albumin and casts associated with movable kidney, (2) cases of true nephritis associated with movable kidney, (3) chronic interstitial nephritis, (4) diffuse nephritis. Doubtless in many of the cases so far collected the albumin and casts were manifestations of a temporary condition brought about by tension of the renal pedicle, torsion or kink in the ureter, or some similar mechanical condition resulting from the renal mobility. In these cases the operation has removed the cause and its manifestations have disappeared. Doubtless, also, some of these cases may have been reported as cases of true nephritis, although the conditions involved have not existed long enough or continuously enough to have brought about permanent degenerative changes in the renal tissues. In others a true nephritis doubtless exists associated with the renal mobility. Both these classes of cases are fit subjects for operation, but whether the individual patient under consideration demands a fixation as well as decapsulation must always be a matter, and often a difficult matter, for the judgment of the surgeon to decide at the moment. As has been said, Dr. Edebohls is emphatic in his statement that he tries never to perform a nephropexy in such cases unless there are present symptoms directly referable to the mobility of the kidney as distinct from those due to the nephritis. Of the cases reported where operations have been made for nephritis accompanied by renal mobility many, if not most, have had something in the way of uremic symptoms and have had some degree of edema; and in some there has been general anasarca. If there be present a general anasarca accompanied by grave cardiac disturbance experience so far would seem to indicate that it is distinctly doubtful if operation should be attempted. If the patients have some uremic symptoms and more or less edema, it would seem as though operation might fairly be done, provided proper medical means have failed to benefit essentially the conditions existing; but so long as a patient with chronic Bright's disease is comfortable and is excreting a proper amount of solids he should be let alone until such time as, in spite of his physician's efforts, his disease is making evident progress and his heart is being gradually called upon for more than it can accomplish. The same is true with cases of interstitial nephritis as with the more diffuse form of degenerative change, and results, so far as they go, certainly seem to indicate that some cases of chronic Bright's disease in their earlier stages and before serious damage has occurred are amenable to betterment and sometimes to cure by operative means; and that in such cases, carefully selected after a proper study of the conditions present, the operation of renal decapsulation is attended with little risk to life. Such, in brief, seem to be the facts up to the present time.

Now, what is the reason why such operations should have so marked an effect upon diseased kidneys? Edebohls' belief was that decapsulation resulted in the formation of adhesions, and new blood vessels which improved the circulation of the organ and made its regeneration and the gradual absorption of exudate and interstitial tissue possible. Israel and Pousson, as has already been said, never operate for a nephritis, but for the relief of definite symptoms, such as pain or hematuria, and they believe that the benefits accruing from their operations are due to relief of renal tension. Harrison also believes this and was the first to advance this theory. Edebohls' idea of a new collateral circulation has inspired a number of men to try to work out the problem experimentally, the animals used in their experiments having been for the most part dogs and rabbits.

N. H. Gifford has recently published his research work in this direction and the summary of his work is as follows:

Following the decapsulation of kidneys in rabbits, in normal dogs, in dogs with induced nephritis, in dogs with infarcted kidneys, and in dogs with normal kidneys but with additional work thrown upon them, I find the following conditions:

(1) In all my cases of two days and under and in my controls the entire thickness of the capsule had been removed over two thirds of the surface by the operation of decapsulation.

(2) There is a certain amount of intracapsular tension in undecapsulated kidneys, normal or with nephritis, as shown on removal of capsule.

(3) There is an immediate increase in size of decapsulated kidneys persisting up to one month at least; afterwards, a decrease to approximately normal size complete at end of six months.

(4) There is congestion, moderate in degree, most marked in the intertubular blood vessels in cortex, lasting three to five days after the operation.

(5) No histological change in the renal epithelium follows the operation of decapsulation of kidneys.

(6) A new capsule, very vascular, at first, two to four times' thickness of old, is well marked at end of eight days. At end of six months it returns to approximately the normal thickness and vascularity. The new capsule arises chiefly from the connective tissue cells of the intertubular connective tissue, but in part from the retroperitoneal connective tissue which is present in the new bed of the kidney.

(7) No new vessels are formed which anastomose with those of the kidney.

(8) The increase in size is due primarily to the increase in blood supply, possibly resulting from the removal of the capsule.

Haven Emerson still more recently has published his studies upon the capsule of the kidney and gives a brief résumé of the work done by others up to the time of his own writing, concluding with a description of his own work. The substance of the previous work may be briefly stated as follows:

Albarran and Bernard conclude, from their experiments on animals, that any relief to renal congestion from decapsulation must be very transitory as a new capsule is so promptly formed and is thicker than the one removed. Boutsch-Osmoloffski concluded from their research that no new vessels of importance were formed, that the peripheral renal tissues became markedly atrophied and that a replacement fibrosis took place. Johnson's conclusions were practically the same as those of Albarran and Bernard. Bassan says that his own experiments as well as those of Claude and Balthazard supported the idea of the formation of new vessels. The latter gentlemen do claim to have found important venous lymph channels in the organized perirenal adhesions. Fabris claims that a new capsule is always formed within thirty days. He says that a decapsulation might help an acute unilateral nephritis but not a chronic and bilateral one. Ferrannini concludes that experimentally decapsulation results in no change of clinical importance. Anzilotti says that a new capsule is formed in from fifteen to twenty days, that several months later the new capsule is still found thickened, the tubules of the kidneys distorted, their epithelium degenerated and their glomeruli necrotic. He also claims that new vessels are developed both in the capsule and the kidney tissue. Emerson having made the preceding résumé of the work of others draws the following conclusions from his own experiments. He says, "Evidence proves, (1) that decapsulation may cause an interstitial nephritis of varying degree; (2) that there are usually found some new vessels between the kidney and the new capsule and between the capsule and the surrounding parts." He says we may hope for a temporary relief of pressure and an increased vascular supply for a limited period, but that we must face the certainty of the formation of a quickly forming dense and contracting capsule; the probability of the establishment of a chronic interstitial nephritis in the majority of cases; and only a possibility of any permanent increase in the renal blood supply. Edebohls has had the opportunity of seeing the kidneys from a patient who died four months after his operation from a disease in no way connected with it. Sections of these kidneys were made, and dilated blood vessels were demonstrated passing from the perirenal fat through the capsule and into the kidney substance. From the work so far done by these and other experimenters it would seem that the bulk of evidence goes to prove that a new capsule does form within a few weeks after operation, but that the establishment of a collateral circulation sufficient in degree to materially affect the renal tissues may at present fairly be doubted. Whatever may prove to be the true explanation of these clinical facts, it does seem as though these results already obtained had demonstrated enough to make one sanguine that the future development of renal surgery along these lines promises much.

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DIET IN NEPHRITIS.*

BY HENRY JACKSON, M.D., BOSTON.

In no disease is it perhaps more important than in disease of the kidney for us to remember that our object in taking care of patients is to

*Read at the meeting of the Boston Medical Library in Conjunction with the Suffolk District Branch of The Massachusetts Medical Society, Medical Section, Dec. 21, 1904.

render their lives useful to others, comfortable to themselves. In diabetes, for instance, we must in our present knowledge of the disease prescribe a diet that necessarily calls for much forbearance on the part of the patient; but recent studies of renal disease have made us skeptical as to the good we can do our patients by restriction of the diet to a degree that practically causes our patients to practice self-denial.

Nephritis may for clinical purposes be divided into three great classes, — acute, subacute and chronic.

A study of post-mortem records makes us extremely doubtful as to our ability to diagnose in all cases even the existence of serious kidney lesions, and definitely shows us that we cannot decide on the form of the pathologic process in cases where we recognize the existence of some chronic renal disease. Hence, it is plain that it is useless to say that such a diet is indicated in chronic parenchymatous nephritis and another entirely different diet in chronic interstitial nephritis. In the vast majority of cases of chronic kidney disease, as Dr. W. T. Councilman has so strongly emphasized, we have to deal with a mixed pathologic process, a disease of the interstitial substance, the chronic diffuse nephritis.

So far as acute nephritis is concerned, the question of diet is a simple one. We have to deal with an acute disease, probably infectious, the chief factor being an acute process in the kidney which prevents that organ from carrying on its functions as a secretory organ and a filtering apparatus. The disease itself is of short duration, ending in recovery, death from failure of the kidney, or in a subacute or chronic disturbance of the kidney; in the last case the treatment is included in the management of chronic nephritis.

In acute nephritis without doubt the proteids must be reduced as much as possible, therefore all meats are excluded. It seems to be essentially unwise to give animal broths which are known to contain a minimum of nutrition, yet do contain various extractives that are irritating to the kidney. I have never found that carbohydrates appeared to irritate the kidney; they replace to a certain extent the proteids which must be eliminated from the diet; they assist, I believe, in the digestion of the milk in that they mechanically aid in preventing the formation of large curds; finally, and perhaps the most important factor, they render a milk diet palatable. Personally, I feel sure that a cup of milk eaten with a spoon with bread crumbed into it is far more digestible than a glass of milk even when that milk is taken slowly. Van Noorden's recent and very valuable work showing that liquids are excreted with difficulty by the acutely diseased kidney proves to us that the fluids ingested must be limited as well as the proteids. Therefore, in acute nephritis, no meat, no eggs, unless needed to nourish the patient; two to three pints of good milk and some bread or cereals as desired by the individual. If there is much edema give a small amount of water.

In chronic nephritis we have a far different problem to deal with. Clinically, I believe it is impossible to say whether a patient with a moderate amount of albumin and numerous casts in the sediment, what we have fair reason to consider as a chronic diffuse nephritis, will live in comparative health for years or succumb to an acute exacerbation of the trouble in a few months.

I watched such a case in a young man for years; he was to all intents and purposes perfectly well so far as his feelings went; recently, without any apparent cause, acute trouble started in the kidney and he died in a few days. These I believe to be the cases that require the greatest care in diet. The process is chronic; the loss of albumin is a drain to the system; they are many of them living an active life. Such cases must be properly nourished. They must have a fairly abundant proteid diet; the strain on the digestive organs I believe to be much less when the proteids are given in the form of meat and eggs than when the same amount of proteid is given in large quantities of milk. Considering the matter purely from the point of view of the nutritive value of the two substances, the bulk of the milk required to properly nourish the individual is so much greater that it requires over-distention of the stomach and bowels to accomplish the result obtained by the ingestion of a small amount of meat.

As we have a diseased individual to care for, all strain on the digestive apparatus must be removed. The diet must be devoid of all irritating substances, as pepper, mustard and similar condiments; recent studies, especially by French observers, have shown experimentally that salt was excreted with difficulty by the diseased kidney, and that its withdrawal often had a marked effect upon the amount of the edema. Rich meat broths are to be eliminated for the same reason mentioned in the case of acute nephritis. The kind of meat chosen is not of importance, provided the variety decided upon agrees with the individual. Recent investigation of Von Noorden and others have shown that chemically the red meats do not differ essentially from the white meats. The exact chemical researches, therefore, of the recent investigators show the wisdom of many clinicians who have for years advocated the careful use of meat in nephritis, irrespective of the color of the meat.

In acute nephritis the diet must be cut down to the smallest amount compatible with the maintenance of a fair degree of bodily strength; the patient must live upon a diet suitable for an acute febrile disease; in chronic nephritis the diet must be limited to the quantity required to maintain so far as may be a proper equilibrium. All excess is to be avoided.

The great nutritive value of fats must always be remembered, and our patients induced to eat as much fresh butter and cream as their digestion warrants.

In bare outline a proper diet may be suggested as follows:

Breakfast: Cereal with cream, egg, bread and butter. Very weak coffee with much cream, fruit, glass of milk. Dinner (preferably in midday): One ladlefull soup, little fish, one slice meat, one vegetable. Dessert: Essentially fruits; "simple" children's puddings may be taken as desired. Supper: Cold meat, broiled fish, bread and butter, milk.

Where the condition is not good milk in the forenoon and at bedtime is indicated. Koumyss in my hands has rendered very material service.

It is my experience that in cases of this class the exhibition of a considerable quantity of water, especially alkaline waters, is of value. Since the publication of Van Noorden's work on the subject I have made trial of reducing the fluids, and my results have not been favorable.

We then have to consider the third clinical type, cases that are probably of the pure interstitial type; cases that secrete a large amount of water and in which an occasional cast is found in the sediment. In these cases we usually have still greater doubt as to the diagnosis than in the cases where we suspect chronic diffuse nephritis.

In young people the diagnosis is comparatively easy, but who can diagnose in the elderly person the condition of the kidney when we accidentally find a trace of albumin and a few casts? Or, rather, it is not as to the diagnosis of the pathologic condition of the kidney, as in either case we have essentially changes in the interstitial tissue, but the prognosis. One person lives for years without untoward symptoms suggestive of kidney failure; the other has acute disturbance and death. I think the diet may be expressed in a simple, nourishing diet, moderate in quantity and quality. Avoidance of all stimulating articles, no wine or liquor. Often the kidney lesion is entirely in abeyance in importance to the cardiac or other complications that accompany, result from or cause the renal condition. I think the last sentence is not too loose as expressive of our knowledge of the relation of arteriosclerosis interstitial disease of the kidney degeneration of the myocardium.

SOME FURTHER OBSERVATIONS ON LEUCOCYTOTOXINS.*

BY HENRY A. CHRISTIAN, M.D., AND THOS. F. LEEN, M.D., BOSTON.

In a previous paper one of us [1] reported the results of some work on leucocytotoxins carried out in the clinic of Professor Krehl at Tübingen. Since that time we have continued the work, confirmed some of the results previously obtained, and added some new observations which we now present.

In this work we have used the Pfeiffer warm chamber as manufactured by Zeiss, and in it studied at body temperature the action of blood sera and other fluids on the ameboid motion of leucocytes. The cessation of the motion of the leucocytes has been used as an indication of the toxicity of the fluid employed. Generally one part of the blood was mixed with five parts of the serum to be tested. This mixture was placed immediately in the warm chamber and observed for varying lengths of time up to one hour. If the leucocytes ceased their ameboid motion within five minutes the reaction was considered positive and the fluid in question was regarded as leucocytotoxic. All results were controlled by preparations of undiluted blood or a mixture of blood and an inert serum examined under the same conditions of time and temperature.

For the study of acquired leucocytotoxins animals were inoculated with suspensions in 0.9% salt solution of tissues from another species of animal. Rabbits were inoculated with a suspension of rat spleen. After several of these injections the blood serum of the rabbit becomes toxic for the leucocytes of the rat and stops their ameboid motion almost instantly. Rats similarly injected with rabbit spleen furnish a serum toxic for the leucocytes of the rabbit.

It might be thought that this effect would be confined to the spleen and to other tissues of the hematopoietic series. However, it was found that suspensions of liver or kidney cells of the rat when injected into the rabbit would cause the production of leucocytotoxins and hemolysins in the rabbit serum.

Since all of these tissues contained blood, both blood corpuscles and tissue cells were injected simultaneously. To remove the blood from the tissues before using them for injections they were thoroughly irrigated through their blood vessels with a 0.9% salt solution. Injections of a suspension of kidney so prepared gives likewise a leucocytotoxic serum.

Recently we have used the guinea pig and rabbit in our studies. Rabbits have been inoculated with suspensions of the spleen and kidney of the guinea pig, the latter after thorough removal of blood as in the previous experiments. The serum from such rabbits is toxic for the leucocytes of the guinea pig.

To test the extent of distribution in the body of receptors capable of causing the production of a leucocytotoxic serum, the cardiac muscle was tried. By means of a canula inserted in the aorta of a guinea pig salt solution was injected under some pressure until the heart was quite thoroughly freed from blood. The heart muscle was then ground up and a suspension of this in 0.9% salt solution injected into rabbits. After several such injections the serum of the rabbit becomes leucocytotoxic for the guinea pig.

In the first series of injections when the rabbit and the rat were used the resultant sera were in both cases leucocytotoxic and hemolytic. Although rabbit's serum is normally somewhat hemolytic for the guinea pig the degree of hemolytic action is much increased after injections of the spleen, kidney or heart of the guinea pig. In none of the ways employed were we able to produce a serum which was leucocytotoxic, and at the same time not hemolytic.

* From the Sears Pathological Laboratory of the Harvard Medical School.

[1] Christian: Einige Beobachtungen über natürliche und künstlich erzeugte Leukotoxine, Deutsch. Archiv. f. klin. Med., Bd. lxxx, 1904, 333.

Inactivation experiments in the series, in which guinea pig cells had been injected into rabbits, failed. The serum of immunized rabbits heated to 56°, 60°, or 65° C. for one-half hour in the water bath, when subsequently mixed with guinea pig's blood in the warm chamber, produced cessation of the ameboid motion of the leucocytes as before heating. This is probably due to reactivation by means of the complement contained in the guinea pig's blood.

Blood sera prepared by the inoculation of animal tissues, while toxic for the leucocytes of species of animal whose tissues were used in the the immunization, are relatively inert, with few exceptions, towards the leucocytes of other species. This is in accord with the well-known action of the hemolysins. As with the hemolysins the specificity of the leucocytotoxins is one of receptors rather than of cells. Cells embryologically, morphologically and functionally different, as those of the liver, kidney and heart, possess certain receptors in common by which their injection into another animal species produces a serum at the same time leucocytotoxic and hemolytic for the blood cells of the first species, and yet such a serum has little or no action on the blood cells of a third species of animals, though embryologically, morphologically and functionally, we cannot differentiate between the blood cells of these animals. This relation has already been emphasized by Ehrlich and Morgenroth in their work on hemolysins, and more recently by Pearce [3] for other body cells. In other words serum reactions give us evidence of cell relations, probably chemical in character, which hitherto have escaped our technical methods, and show that cells may be at the same time in certain respects closely related, yet in others widely different. The full significance of this relation is probably as yet unknown.

We have also examined bacterial cultures for the presence of leucocytotoxins. This work has been almost entirely negative. Cultures in bouillon of B. coli, B. typhi, B. dysenteriæ and Staphylococcus pyogenes aureus were used, the first three after twelve days' growth at 37°C., the last at the end of six weeks' growth. Portions of these bouillon cultures were tested in the warm chamber as to their action on the ameboid motion of the leucocytes of the guinea pig. None showed any marked toxicity. None of these bouillon cultures were hemolytic for guinea pig or rabbit red blood corpuscles in the proportion of 0.1 cc. of culture to 1.0 cc. of a 5% suspension of red blood corpuscles in 0.9% salt solution.

On the other hand, a solution of diphtheria toxin stopped instantly the ameboid motion of guinea pig leucocytes in a dilution which produced no hemolysis, while solutions of saponin of varying strength were both leucocytotoxic and hemolytic.

Summary. — These experiments show the ease with which leucocytotoxins can be produced by the injection of a variety of somatic cells, as those of the spleen, liver, kidney and cardiac muscle. Leucocytotoxic sera so produced are also hemolytic and the specificity of such sera is analogous to that of hemolytic sera. Cultures in bouillon of various bacteria contained no substance which was cytotoxic for the leucocytes of the guinea pig when tested by this method.

[3] Pearce: Concerning the Specificity of the Somatogenic Cytotoxins, Jour. of Med. Research, xii, 1904, 91.

Clinical Department.

A CASE OF SOMNOLENTIA. (SLEEP DRUNKENNESS.)*

BY E. W. TAYLOR, M. D., BOSTON.

THE following condition is unusual in my experience, whether it is to be regarded as a variety of somnambulism, or as a manifestation of a dream state in an otherwise normal individual.

The patient was a strong, apparently well-balanced man of thirty-one, occupying a position as salesman. He was not epileptic, unless one begs the question by regarding the manifestations about to be described as such. For years he had suffered from ordinary sleep-walking, possibly occurring once yearly, which is of interest in relation to the events for which he sought advice. The immediate cause of his visit was the following experience: The previous night, impelled by an irresistible impulse, he had left his bed, gone to his window which was on the third story, unhooked the wire screen — it was in summer — grasped the copper water leader and slid down by the aid of this fragile support to the ground, scraping his hands, toes and knees to a painful degree in the descent. Arrived on the ground he immediately realized his situation, recalled what he had done, how he had reached his present position and returned quietly to bed. He was sure that his consciousness was not lost during any part of the foregoing proceeding, although he felt himself wholly unable to resist the impulse which forced him to the act, which, however, forthwith became ridiculous on his complete awakening. Every detail of his really perilous feat, he described with a minuteness which left no doubt as to the accuracy of his memory.

On another occasion, six months previously, he had left his room at night, gone with apparent purpose to a neighbor's house which happened to be a boarding house, made his way through a window, and found himself in a room in which a man was sleeping. Roused by the intrusion, the man challenged him, and forthwith brought him to a full waking state, with his perceptions keenly alert. Realizing fully his compromising position, he at once, with perfect self-possession, assured his host that he had mistaken the room, and withdrew as gracefully as the circumstances allowed. On this occasion he was attired in a cotton nightshirt and the weather was cold. His remembrance of the event was perfect as in the former instance. Again, two years before, he vaulted from a third-story window, and while hanging from the sill was awakened by his brother, and quickly restored to full waking consciousness, so that he was able to get back into the room. He has had many similar experiences, but the foregoing are typical of all. When finally completely awakened, there is absolutely no vertigo or confusion; he forthwith appreciates the situation in which he finds himself, and takes immediate and intelligent measures to extricate himself from his difficulty. He returns to bed and quickly and naturally falls asleep again.

*Read at a meeting of the Boston Society of Psychiatry and Neurology, Feb. 16, 1905.

An attempt to analyze the cause of the seizures is of interest. Fear appears to be the predominating motive of his actions; he thinks he dreams. For example, on the occasion of the first attack described, a big man threatened him, seeming to shut the door, barring exit, leaving as the only method of escape the window, of which he availed himself. At another time a "big black thing" came down on him, whereupon he vaulted from the window. In general the sense of being pursued, accompanied by overmastering fear, drives him to an attempt at escape. On one occasion, while working at the bottom of an elevator well, a plank fell near him from above; he escaped injury, and was not especially frightened, but the following night the event recurred to him, and he found himself on the floor, screaming and swearing. He awoke, and was again asleep in five minutes. At times he lies in bed and screams.

Physical examination showed an absolutely normal man, of unusual composure and vigor, except for the fact that he was painfully bruised where he had come in contact with the copper pipe. He is absolutely well during the day; he has had no convulsions or "fainting" attacks; he has never bitten his tongue or injured himself at night, except in his escapades, as described. His habits are sufficiently good as regards alcohol and tobacco. He has had gonorrhea, but not syphilis. He has lost some weight in the last years; he is unable to attribute his night attacks to indiscretions in diet, though he has given this possibility considerable thought. His pupils and knee jerks were normal, and there was no suggestion of hysteria. He had recently successfully passed a life insurance examination.

The points of interest in the case are the purposive character of the acts done under the influence of fear, and the fact that the details of these acts are perfectly remembered, although their exact exciting cause is often vague. The diagnosis of the condition is, no doubt, what has been called sleep-drunkenness or somnolentia. Dana devotes a paragraph to it in his textbook and aptly describes the condition as "a kind of active nightmare." He also states that the disorder in its severe form is very rare. The distinction from other temporary alterations or modifications of consciousness is not difficult in a clearly marked case, as the foregoing seems to be. An ordinary dream, or so-called nightmare, is usually incoherent, and does not lead to definite actions. Night terror as seen in children is probably an allied condition, but is ordinarily a harmless affection with good prognosis, not extending beyond the early years of life. Hysterical conditions with reduplication of consciousness, or the somnambulistic states hardly enter the inquiry, since in these the amnesia is complete; nor need we seriously consider the manifestation as a psychic equivalent of epilepsy. Dr. Morton Prince has suggested that the condition may be regarded as transitional between ordinary somnambulism and an hysterical state.

The following case, no doubt, also belongs in the category of somnolentia. A boy, employed in a private dwelling, one night awoke the neighborhood by cries of a most distressed character. On investigation by the police and others it was found that the house had not been entered by burglars, although this was the definite statement of the boy. On gaining entrance to his room, he was found unconscious beside the bed, with blood about his face and on the floor, no doubt the result of his fall. His story was that a thief entered his room, that he was greatly alarmed, that he had reached out of bed for his shoe, which he hurled at the intruder, who then made his escape. The noise of the shoe striking the woodwork had been heard by persons in the house, and the indentation it had made was plainly visible. The boy could not be shaken in his story which, however, was manifestly not a correct statement of what had occurred. The case excited much interest at the time, but no satisfactory explanation was found for the actions of the boy who, both before and after, appeared normal.

The condition was probably one of sleep-drunkenness — a vivid dream, which led to a purposive act in throwing the shoe, with a distinct subsequent remembrance, though false interpretation of the events. The failure to recognize the whole affair as a dream the following day may have been designed, because of the unexpected prominence which he had brought upon himself.

It is evident that such cases may have important medico-legal bearings; in fact this has been recognized by certain writers on the subject. On the other hand, the condition is not mentioned in Buck's Reference Handbook of the Medical Sciences, in Peterson and Haines' recent treatise on Legal Medicine, or in Draper's very recently published textbook on the same subject. My patient was undoubtedly irresponsible after leaving his bed, until he was finally fully awakened. He had never seriously injured anyone, but he assured me that were he to be forcibly prevented from making his escape from the threatened danger, he would stop short of no degree of violence to attain his end. The delicate point here involved is evident. By way of treatment I advised my patient to attach himself to a bell by means of a cord, so that he might be at once aroused on starting to get out of bed. The result I have not heard.

Medical Progress.

PROGRESS IN PATHOLOGY.

REVIEW OF RECENT WORK ON THE PATHOLOGY OF ARTERIAL DISEASE.

BY JOSEPH H. PRATT, M.D., BOSTON.

(Concluded from No. 13, p. 375.)

ANEURISMS OF NON-LUETIC ORIGIN.

For over eighteen years Heller and his pupils have been demonstrating that syphilitic aortitis is the most important cause of aortic aneurisms. At the meeting of German physicians and scientists held at Munich in 1899, only Bollinger and his students supported the teaching of Heller. At the 1903 meeting of the German pathological society, however, the views of the Kiel school were accepted by many. Heller has always maintained that aneurisms might possibly be produced by infectious processes other than

syphilis, which weaken the aortic wall. He reported a case in which tuberculosis of the abdominal aorta was the probable cause of an aneurism,[12] and more recently an instance of aortic aneurism due to traumatism.[13]

A man of thirty-seven, after severe muscular strain, was seized suddenly with pain in the chest and back. As the pain continued, he sought medical aid. The physical examination revealed the existence of aortic insufficiency. Death occurred eleven months after the injury. At the autopsy an aneurism of the ascending arch of the aorta was found, evidently of traumatic origin. Clinical and anatomical study showed that the aortic insufficiency was likewise due to traumatism. Two days after the illness there was pronounced increase of cardiac dullness due to acute dilatation of the left ventricle. There was loss of substance in two cusps of the aortic valve without evidence of endocarditis. The aneurism took its origin in a tear beginning in the sinuses of Valsalva. Very few cases of aneurism of the aorta have been reported with complete pathological, as well as clinical, evidence that traumatism was the cause.

HISTOLOGICAL DIFFERENCES BETWEEN TRAUMATIC AND SPONTANEOUS ANEURISMS.

The opinion is now quite generally held, says Chiari [14] in his latest paper, that spontaneous aortic aneurisms are the result of a mesaortitis, the most frequent cause of which is syphilis. His assistant, Asahi, has examined four cases of healed tears of the aorta. None of them showed any signs of mesaortitis on careful microscopical examination. They were probably all the result of severe traumatism. In one instance this lead to the formation of an aneurism the size of a man's fist. Severe mesaortitis productiva was present in all of the six cases of spontaneous aneurism that came to autopsy during the past year in Chiari's pathological institute.

ARTERIOSCLEROSIS AND CARDIAC HYPERTROPHY.

Hasenfeld [15] working under Romberg in the Leipsic medical clinic found that sclerosis of the arteries of the abdominal viscera exerts particular influence upon hypertrophy of the heart; while sclerosis of the peripheral or cerebral vessels is without effect. Hirsch [16] made a careful examination of twenty cases, and he regarded his study as supporting the proposition of Hasenfeld, that "arteriosclerosis only leads to hypertrophy of the left ventricle when the splanchnic vessels or the thoracic aorta are markedly diseased."

Marchand,[17] however, has found no constant relation between sclerosis of the splanchnic vessels and hypertrophy of the left ventricle. He has observed a case of advanced sclerosis of the thoracic aorta, coeliac, hepatic, splenic, renal and mesenteric arteries without hypertrophy of the left ventricle. He concludes that granular atrophy of the kidneys is the chief factor in the production of cardiac hypertrophy.

ARTERIOSCLEROSIS IN EARLY LIFE.

Seitz stated that of 148 individuals from ten to twenty-nine years of age, coming to autopsy at the Munich pathological institute, changes in the aorta were present in 17 or nearly 11.5%. More recently v. Simnitzky [18] reports from Chiari's laboratory that among 138 bodies of individuals below the age of twenty-five, sclerotic changes were found in the aorta in 38 or 27.5%. Excluding all cases below the age of two years, none of which showed changes in the aorta, increased the percentage to 48.7. The "arteriosclerotic" changes consisted almost wholly of yellowish flecks in the intima. Histologically degenerative and regenerative changes were found in the media as well as in the intima. Only two cases showed alterations in the adventitia.

LOCALIZED SCLEROSIS OF THE CORONARY ARTERIES.

Schabert [19] presents a valuable study of six cases of coronary sclerosis limited to the orifices of the coronary arteries. Diffuse sclerosis is much more common. Hampeln observed 41 pronounced cases among 1,410 autopsies. In all six of Schabert's cases there was sclerosis of the root of the aorta, and aortic insufficiency. The localized luetic aortitis was present in two instances. In three the right coronary artery was closed and in the other cases greatly stenosed. The left coronary was not affected in four and only narrowed in one. Two of the individuals were luetic, and two of the others were in the third decade.

ETIOLOGY OF SCLEROSIS OF THE RADIAL ARTERIES.

Thayer and Brush [20] analyzed the records of nearly 4,000 patients entering the medical wards of the Johns Hopkins Hospital and found that the percentage of palpable radial arteries is naturally higher among individuals who give a history of hard physical work and of the use of alcohol than in the remaining cases. Hard labor was the most important cause. Palpable radials were more frequent in individuals who had suffered from the severe infectious diseases than in those who had not. Rheumatism is the acute infectious disease that most frequently leads to thickened radial arteries, and next to rheumatism is typhoid fever. A history of alcoholic indulgence was present in 43.6% during the second decade, 59.4% during the third decade, 64.8% during the fourth decade and 70.8% during the fifth decade. Multiple causal factors, such as infectious diseases, hard work and alcohol, were present in the majority of those cases. Study of the cases in which only a single factor was found revealed the fact that alcohol alone was the apparent cause in 46.8% of the cases below the age of fifty. Overstrain of the vascular walls from continued or intermittent high-blood tension is the main factor in producing thickening of the intima. The average blood pressure was higher in every decade among individuals who had had typhoid fever than in control observations on healthy persons who had not had the disease.

ARTERIOSCLEROSIS OF NEPHRITIC ORIGIN.

Dock [21] says that there is a great deal of assumption, but no actual knowledge in regard to arteriosclerosis of nephritic origin, and pleads for more extensive clinical investigation of the subject. He reports a case of acute nephritis in a previously healthy boy of fifteen years, in which, during the whole course of the disease, the blood pressure was high, ranging from 170 to 190 mm. with the Riva-Rocci instrument.

It should be pointed out, however, that Heydloff, Filatow and Rachmaninow [22] have recorded cases of arteriosclerosis in children, apparently due to chronic nephritis.

Marchand [23] asserted in his paper, presented before the Congress of Internal Medicine held in Leipsic last April, that chronic nephritis is a common cause of arteriosclerotic changes in early life, and reported two cases. He attributes the sclerosis to the action of the high blood pressure in chronic nephritis, although he does not doubt that other injurious factors are concerned in the production of such severe alterations in the vessels.

ANGINA PECTORIS AND ARTERIOSCLEROSIS.

The association of angina pectoris with coronary sclerosis is undoubted, and yet, as Osler [24] points out, there is some causative element in addition to coronary sclerosis of which we have no knowledge. Coronary sclerosis is common, angina pectoris is rare. Attacks may occur in persons with healthy arteries. Osler has reported a case of angina pectoris in a young man of twenty-eight whose coronary arteries, the autopsy showed, were quite normal.

ALCOHOL AND ARTERIOSCLEROSIS.

Cabot [25] does not think that alcohol is an important factor in the production of arteriosclerosis. Only 6% of 283 cases of chronic and excessive alcoholism under fifty years "showed any evidence of arteriosclerosis." Of 45 cases of arteriosclerosis, under fifty years of age, examined by Cabot at the Massachusetts General Hospital, only 13% gave any history of alcoholism. Patients whose arteries were merely palpable without being tortuous, hard, or rough, were not counted as cases of arteriosclerosis. Of 656 autopsy records in which arteriosclerosis formed a part of the pathological diagnosis, only 95, or 14.5%, were under the age of fifty. Out of these 95 cases below fifty years of age in which arteriosclerosis was found post mortem, only 21%, and if cases complicated by chronic nephritis are excluded, only 17%, appear to have consumed alcohol in any notable excess.

MERCURY AND ARTERIOSCLEROSIS.

Drennen [26] maintains that mercury is as important a factor in the production of arteriosclerosis in syphilities as the disease itself, but presents no evidence in support of this position.

EFFECT OF ARTERIOSCLEROSIS ON VASOMOTOR ACTION.

Romberg [27] and Mueller investigated by means of the plethysmograph the disturbance in function of the vasomotors produced by arteriosclerosis. They found that arteriosclerosis, even in the earliest stage recognizable clinically, injures the function of the affected vessels. Arteriosclerosis rarely influences the general circulation in such a manner as to cause elevation of the blood pressure and hypertrophy of the left ventricle, and changes in the blood pressure and the size of the heart when produced are generally slight. More important is the damage caused by arteriosclerosis to the vasomotor action. The body loses thereby more or less completely one of the best means of regulating the circulation to the varying demands of life; the damage is accentuated if the veins are also sclerotic.

THE CONDITION OF THE ABDOMINAL AORTA IN OLD AGE.

Bauer [28] concludes from a systematic examination of the aortas of 75 aged persons, dead of various diseases, that arteriosclerosis is more frequently localized in the abdominal aorta than in the arch of the thoracic aorta.

THE ELASTICITY OF THE AORTA.

Herrington and Wells [29] have studied the physical properties of the aorta. They reached the following conclusions: The aorta follows the law laid down by Wertheim for the elasticity of organic bodies. Its width increases with age as the result of internal pressure exercised upon it by the natural forces of the circulation. The more it thus becomes dilated, the less is it capable of being further stretched. Aortas, even when dilated, stretched by weights up to 200 gm., retain the power of returning to their original volume. Elasticity depends chiefly upon the media. The tunica media increases in substance with age. This increase is to be ascribed to the elastic or connective tissue or both. The "loss of elasticity" is due to changes in these tissues. The histological alterations, other than simple increase, are not sufficient to account for this loss.

Another recent publication dealing with the functional changes of the arteries in arteriosclerosis is that by Geigel.[30] Sclerosis diminishes the extensibility of the arteries, and this, he points out, is often mistaken for a loss of elasticity. A normal artery is distensible. Increased blood pressure separates the component parts of the wall and thereby the surface of the wall is increased, and the thickness at the same time diminishes, in other words, the vessel dilates. When the distending force ceases to act, that is when the blood pressure falls, the vessel wall tends to return to its original form. The completeness with which it does so is its degree of elasticity. An ivory ball has but little extensibility, but great elasticity. Every elastic body has limits to its elasticity. When a body is distorted beyond these limits it cannot return

to its original form. Sclerosis and atheroma certainly alter the distensibility of the vessel, and it becomes more "rigid," and we are accustomed to say, there is "loss of elasticity." This, however, is not true. The "elastica" is frequently destroyed, but there is no evidence to show that such an artery infiltrated with lime salts is less elastic, although without doubt it is less distensible. In sclerosis and atheroma the limits of elasticity are less, and in fact are often exceeded by the blood pressure. Persistent enlargement of the vessels results not only in circumference but in length, so that they are lengthened as well as dilated. The former change can readily be observed in the torticosity of the visible and palpable arteries, such as the temporal and radial.

Schwyzer [31] holds that the elastic tissue of the aorta is not the main cause of its distensibility, but acts chiefly to prevent over-distention. The collaginous substance of the aorta is elastic and has great yielding power.

BLOOD PRESSURE IN ARTERIOSCLEROSIS.

Sawada [32] reports from Romberg's clinic in Marburg that out of 98 cases of arteriosclerosis which showed no signs of cardiac or renal vessel an elevation of blood pressure was found in only 15 cases or 12.3%. The pressure in most of these 15 cases was between 130 mm. to 140 mm. of mercury. The highest pressure was 176 mm., and in this case probably latent renal changes were present. The pressure in healthy men measured with v. Recklinghausen's modification of the Riva-Rocci apparatus varied between 90 mm. to 120 mm. A pressure above 160 mm. and 170 mm. should always suggest interstitial nephritis, even when, as is so frequently the case, albuminuria is not demonstrable at the time of examination.

EXPERIMENTAL ARTERIOSCLEROSIS.

Josúe [33] produced arterial disease in rabbits by adrenalin injections. In one instance atheroma of the aorta and a saccular aneurism developed in three months. Twenty injections of adrenalin into the circulation were given. A photograph of the specimen accompanies his communication.

W. Erb [34] the younger has also produced arterial degeneration in rabbits by injecting adrenalin. The chief changes were in the media. The intima overlying the degenerated areas in the media was thickened. There was no demonstrable degeneration in the intima. The thickening of the intima was due chiefly to a growth of endothelium and elastic fibers.

B. Fischer [35] has succeeeded in producing experimentally in rabbits a high degree of vascular degeneration, particularly of the aorta. In one case a typical dissecting aneurism formed, which extended from the arcus aortæ to the renal arteries He believes that the first change is a focal necrosis of the musculature of the media; stretching and tearing of the elastic fibers follow with deposition of lime salts in the affected areas. Cellular infiltration occurs later, and not till then does the picture of a mesarteritis appear. The changes are probably not due to increased blood pressure alone, but also to severe disturbances of metabolism induced by the adrenalin. The process differs widely, both in gross and microscopic appearance, from arteriosclerosis in man.

HISTOLOGY OF ARTERIOSCLEROSIS.

Jores maintains that the small areas of fatty degeneration in the intima of the aorta, and which Virchow held to have no relation to atheroma, are really the first stage of the same process, and are associated with hyperplasia of the underlying elastic tissue. Jores has shown that degenerations of the aorta in arteriosclerosis begin in the longitudinal elastic-muscular layer and the tunic internal to it which is rich in elastic tissue. The connective tissue growth in the intima is secondary to the degeneration. It was formerly held that the degeneration originated in the newformed connective tissue.

Ehlers [36] has found that the pathological histology of arteriosclerosis of the pulmonary arteries is quite similar to that of the systemic arteries.

In arteriosclerosis, Coplin [37] finds early changes in the elastic tissue of the vessels. Fragmentation, swelling, separation and curling of the fragmented ends constitute the most common early alterations. Overstrain, admittedly a factor in arteriosclerosis, produces tension on the elastica, and tearing of the elastica may be the initial change in the disease. It is possible that arteriosclerosis is due to the action of toxins on the elastica. Eijkman has shown that certain bacteria evolve an elastica-dissolving enzyme, and it is not improbable that within our bodies deleterious substances of similar nature may be produced. This hypothesis of the dissolving action of toxins on elastic tissue is supported by the fact that elastic tissue elsewhere than in the vessels frequently suffers in arteriosclerosis. The elastic tissue of the lung is reduced in emphysema, and Lancereux found emphysema in 34% of his cases of arteriosclerosis.

HYPERTROPHY OF THE MEDIA.

Hypermyotrophy is defined by Savill [38] as an increase in the muscular tissue of the arteries. The term was first used by him in 1891. Savill regards the condition as the first step in the degeneration and sclerosis of the media. Advanced atheroma and sclerosis of intima and adventitia does not lead to serious consequences provided the media is unaffected. When combined with focal necrosis of the media the condition is most serious, as the media is the functionally active part of the artery and the regulator mechanism of the body. Arterial hypermyotrophy is probably the result of high arterial tension, induced by chronic renal disease or other cause.

We doubt if Savill's views will gain acceptance.

Marchand [39] regards muscular hypertrophy of the arterial wall as separate and distinct from arteriosclerosis. It is in the nature of a work hypertrophy, and occurs in the smaller arteries

of the muscular type when increased work is thrown upon them, as in hypertrophy of the left ventricle resulting from chronic nephritis or aortic incompetency.

CHEMICAL STUDY OF ARTERIOSCLEROSIS.

Analysis of aortas, the seat of arteriosclerosis, according to Rumpf [40] shows an increase of calcium and fat. Potassium and sodium are diminished in amount, as is also the water content. In an early case of arteriosclerosis the blood contained an increased amount of sodium, potassium and soluble calcium. The amount of calcium in the liver was greatly increased. In advanced cases the amount of water in the blood was decreased. In some of the cases of arteriosclerosis combined with nephritis the amount of water in the blood was reduced and the sodium chloride increased. In the later stages of nephritis, usually after edema appeared, the amount of water in the blood was greatly increased.

TUBERCULOSIS OF THE AORTA.

Forssner [41] reports a case of chronic tuberculosis of the aorta in a woman of forty with secondary acute general miliary tuberculosis. The tuberculous process was located in the wall of the descending portion of the thoracic aorta, and formed an oval, slightly elevated, ulcerated area, about four cm. in length and one in breadth. Cases of chronic hematogenous tuberculosis of the aorta have previously been reported by Sroche, Benda, Longcope and Schmorl. In all of these the intima only was affected, while all the tunics were involved in Forssner's case, and the evidence indicates primary injection of the media. There was no pre-existing endaortitis. The tubercle bacilli were probably brought into the aortic wall through the vasa vasorum.

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Reports of Societies.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT BRANCH OF THE MASSACHUSETTS MEDICAL SOCIETY. MEDICAL SECTION.

Meeting of Dec. 21, 1904, Dr. Geo. G. Sears in the Chair. Dr. E. A. Locke, Secretary.

Dr. Paul Thorndike read a paper on

THE SURGICAL TREATMENT OF NEPHRITIS.[1]

Dr. Franz Pfaff read a paper on

THE MEDICAL TREATMENT OF NEPHRITIS.[2]

Dr. Frank Wells spoke on the subject of

NEPHRITIS AND LIFE INSURANCE.

DISCUSSION.

Dr. John Bapst Blake: Assuming that there are certain cases of Bright's disease which may be treated surgically, the operator has four alternative methods of attack. He may, first, operate a single kidney, as Reynolds and Edebohls have at times done; he may operate both kidneys at different times, allowing an interval of weeks to intervene(between the operations); he may operate both kidneys in succession at a single sitting, or he may, with a colleague, operate both kidneys simultaneously. The latter method has certain advantages not possessed by the others. It obviates a second etherization and operation; it shortens the double operation by one half; it does not increase the shock; it does not complicate the technic, after care, nor convalescence; it does not make the patient any less comfortable in the postoperative period. It has been done six or seven times at the Boston City Hospital, always with facility, but I have not found reference to its performance elsewhere. In its performance, each operator has an assistant at his side, not opposite him, and the patient lies on his face. If both kidneys are to be decapsulated, it is the operation of choice.

The varying value of reported medical cases is notorious, and in nothing is it more evident than in this subject. In looking up recent literature, two papers appeared, one from an American, the other from a German. The American reported a single case, upon which a great deal of time and thought had been expended; yet as a whole the work was not available for argument, since the gross appearance of the kidneys was omitted, a specimen was not taken at the operation for pathological examination, and the case was reported as soon as the patient left the hospital; any permanent effect of the operation was therefore unknown. The German, however, presented an admirable paper, though it seems destructive of certain claims put forth by some enthusiasts. He (Rosenstein) [3] gives details of six cases operated in Israel's clinic; of these one died as a result of the operation, two were rather worse, two about the same and one somewhat improved at periods varying from five to fifteen months, after surgical interference. Rosenstein then makes a critical study of Edebohls' statistics; he states that all absolute cures have occurred in kidneys which were also movable, and which really did not have "true Bright's"; he says no "one-sided" Bright's exists — the condition always affects both kidneys; that the "improved" cases were often only slightly improved; and that of the 23 cases of true Bright's, 6

[1] See p. 393.
[2] To be published in a later edition of the Journal.
[3] Deutsch Med. Wochenschrift, July 28, 1904.

are dead; none are cured; 8 are unimproved; 9 are improved. On this basis he summarizes Edebohl's experience with his own as being "exceptionally discouraging." Rosenstein's conclusions, with which we infer that Israel coincides, are, first, decapsulation in a dangerous operation in severe Bright's. (26% mortality.) Secondly, permanent cure of true Bright's is not reported in any case. Thirdly, improvements are reported. In these conclusions the speaker agrees.

I believe there is an indication for operation in Bright's disease, but within definite and narrow limits; to wit, subacute or early chronic cases, in individuals whose constitution is otherwise in fair condition, and who have been under efficient medical care for three months, without benefit, or even with slight increase of symptoms, who are willing to take a moderate chance for the sake of a probable improvement, should be offered the operation, after a fair statement of its history and present standing.

DR. J. W. ELLIOT: Two years ago I had two operative cases in my wards at the Massachusetts General Hospital, one being operated on by Dr. W. A. Brooks. He had seen them at first in consultation with Dr. Cutler in the medical ward who desired to have the operations done.

The first case was of a man thirty-three years old with acute symptoms during a chronic nephritis who had grown worse under medical treatment and who finally had to be bled and etherized on account of severe headache and uremic convulsions. With the patient in poor condition both kidneys were decapsulated at one operation. There was at least two inches of edematous tissue on his back, and as we cut down on the kidneys we met many enlarged vessels which bled profusely. One kidney was double its normal size, imbedded in an inflamed fatty tissue in which there were many enlarged vessels. A piece of kidney substance was excised and pronounced by Dr. Wright to be subacute glomerulo nephritis. The entire capsule was removed from both kidneys. There was a great improvement in his symptoms after the operation. The edema and headache disappeared and there were no more convulsions. He felt as if he were well. The improvement began within two weeks and continued for some time. The urine, however, did not clear up and he finally died at the end of three months of his nephritis. At the autopsy Dr. Wright found the kidneys bound more tightly than usual in their positions *and the organs apparently provided with their usual capsules; there was no increase in the blood supply.* The clinical diagnosis was confirmed.

The second case was of chronic nephritis in a boy, thirteen years old, who had been suffering from the disease more or less ever since he had scarlet fever at the age of four. He had not done well under medical treatment, and came to the surgical ward in very poor condition with an excessive amount of edema. The urine examination revealed only a slight trace of albumin and a few renal cells. Urine contained 1% of albumin. Blood globules, leucocytes, fatty and renal cells, compound granular casts, casts with blood and oil globules and renal cells adherent, blood and epithelial casts. Both kidneys were decapsulated at one operation. He did not improve at first. The edema continued for several weeks. In about two months, however, his improvement became marked. Was seen in seven months, and has since been reported as perfectly well, and is still alive and well, nearly two years since the operation. The urine examination revealed a slight trace of albumin and a few renal cells; no casts.

These two cases are, I think, about typical of the results reported by other surgeons, the chronic glomerulo nephritis being decidedly relieved temporarily, while the post-scarlatina nephritis was permanently improved if not cured. In the first case the post mortem showing that the capsule was regenerated in three months after the operation without an increase in the blood supply is in accord with the experiments on animals just quoted by Dr. Thorndike, also with the experiments by J. W. Hall and G. Herxheimer. This shows clearly Edebohls has not correctly explained the changes resulting from the operations, and will probably lead to a change in the operation itself, for it is not reasonable to peel off a capsule that will so soon regenerate with the addition of a certain amount of scar tissue.

Looking at the question broadly it seems to me that the pathological condition of a kidney shrinking and loosing its parenchyma from chronic nephritis does not offer a very favorable field for surgery. Nevertheless, I have been much impressed with the favorable results reported from these operations, especially in the cases where nephritis has been first discovered at the operation, and therefore in the early stages of the disease; also by the cases reported by Harrison where simple incision into a diseased kidney was followed by favorable results.

I feel sure there is something valuable in an operation on an inflamed kidney. Considering the fact that the capsule is regenerated after decapsulation, I do not think the operation will be continued in its present form, but I do think that operative treatment of nephritis has come to stay. The subject is still in the experimental stage. It remains to be worked out what part of the operation is essential and just what cases are most favorably affected by operation.

For the present I would say: (1) I am convinced that painful, movable kidneys, with or without albumin and casts, should be treated by partial decapsulation and fixation, and in view of the number of movable kidneys found affected with nephritis, by Ferguson and others, I am inclined to take a more serious view of all movable kidneys. (2) It would seem probable in all acute cases where there is great congestion that incision or perhaps puncture will be followed by good results. (3) That as surgery can at most only stop an inflammatory process, the long-standing chronic cases will not prove proper cases for operation. (4) That between the acute and the hopeless chronic cases there will always remain a large number of cases in which there is much doubt about the advisability of an operation.

DR. EDWARD REYNOLDS: It seems to me that Dr. Thorndike's paper is a most comprehensive and judicial one. The operation is still *sub judice*, but I agree with Dr. Elliot that it has some value. Most of us have had the experience which Dr. Thorndike has referred to in the history of the operation, of seeing nephritis benefited by incision into the kidney for other complicating conditions.

We must certainly ascribe to Dr. Edebohls the credit of having been the first to apply the operation to a large number of patients for the definite purpose of treating nephritis *per se*, and personally I think that Dr. Edebohls has made every effort to study the operation judicially and to be fair in his report of his cases. I think it has been a misfortune for the operation that it has been applied for the most part, both by Dr. Edebohls and other surgeons, to advanced and practically hopeless cases with, in consequence, a large proportion of failures and an enormous death-rate. This is, however, the usual history of the early trials of any new operation.

I think that the time has come when this operation should be applied to nephritis while the patient is still

in a state in which there is a reasonable prospect of radical cure, and I expect that with this change the operation will readily take an established position, but we have yet to work out more thoroughly than we have heretofore done the exact choice of cases to which it should be applied.

I believe that we are now in a position to apply the operation to cases in which a chronic nephritis is steadily progressing in spite of medical care and before it reaches the stage of extensive contraction or other forms of traction of the kidney. My own work has been along this line; *i. e.*, an exhaustive preliminary study of the urine of four progressive but not yet advanced cases. The patients were all suffering from definite symptoms of established duration persisting in spite of medical care. All were still out and about, and none had as yet been the subjects of convulsions. One case has been lost sight of, but at the end of nearly two years was apparently in an established convalescence. One who had been a good deal of a wreck has been in first-rate health for seven years, although she has had one slight attack of disturbance of the kidney of a transitory nature. Two are in steadily improved and improving health at the end of one and a half and two years, respectively. My results are therefore very encouraging. I have, however, at the present stage of development of the operation, felt it necessary in operating upon comparatively early cases to make the operative interference as light as possible, and have in each case limited myself to operation upon but one kidney, determining the choice of kidneys by previous catheterization of the ureters (an easy matter in women) and selecting the worst kidney for attack. In each case I have planned to attack the other kidney subsequently if necessary, but in each case the results of operation upon one kidney have resulted in so definite and progressive an improvement in both kidneys (as demonstrated in three cases by subsequent catheterization of the ureters) that I have not performed the second operation.

I may sum my opinion up by saying that although we have still much study before us ere we can feel that our knowledge of this subject is complete, I think we can already promise patients a sufficiently fair prospect of improvement or cure of an otherwise incurable disease to warrant our advising them to submit to operation so soon as medical care fails.

Dr. E. G. Cutler: I wish to say but a few words and shall confine those to the question of the operative treatment of nephritis. We all know how little diet and ordinary medical treatment can do in cases of advanced chronic nephritis, and this consideration led me to try decapsulation in five cases, two of which have just been reported by Dr. Elliot. The third case was that of a woman who was also operated on at the Massachusetts General Hospital. After a short time she was greatly improved and was able to do considerable work. She, however, died about a year subsequent to operation from the complications of nephritis. The remaining two cases were of the chronic interstitial type, and were operated on very late in their course and only as a last resort. One died within twenty-four hours while the other lived for from twelve to fifteen days, finally dying of complications not of nephritic origin. I feel very strongly that we should turn these cases over to the surgeon in the earlier stages. I further believe it a mistake, as Dr. Reynolds has said, to operate on the very advanced chronic types, as experience gives us no encouragement to expect benefit.

Dr. J. L. Morse: I have been asked to say a few words with regard to the treatment of nephritis in children. The treatment of this disease in children must, of course, be based on the same principles as in adults. In children, however, the treatment of nephritis amounts to little more than the treatment of acute nephritis, other forms of nephritis being very uncommon at this age.

The most important part of the treatment of nephritis is the regulation of the diet. In doing this certain points must be remembered. The substances which are excreted with the greatest difficulty by the kidneys are urea, creatinin, phosphuric acid and, in certain conditions, water.

Urea is derived from the protein molecule. Protein, as is well known, is present in large amounts in meat and eggs. Few realize, however, how much protein is contained in milk. Milk in the quantities in which it is usually given contains far too much. It is, therefore, not an entirely innocent food. Its food value is much improved without adding to the protein content by the substitution of cream for a portion of the milk. The nitrogenous equilibrium can be maintained for a short time on a very small amount of protein; for example, a boy of four can get on with about 15 gm. of protein in twenty-four hours. Twelve ounces of milk will give this amount of protein. The food value can be much increased by the addition of a small amount of cream. Three ounces of cream and twelve ounces of milk in twenty-four hours, therefore, is more than sufficient for the needs of a boy of twelve for several days. It must be remembered that the protein of meat and eggs is no more dangerous than that of milk, and that they can be given with safety, providing that the total protein is kept down.

Creatinin is derived from creatin. This is contained principally in meat extracts, meat broths and so on. They contain but little else, moreover, and are therefore very bad foods for nephritis and should never be used under any circumstances. Milk and eggs contain but little creatinin, vegetables none.

Phosphoric acid is present in large amounts in meat, yolks of eggs, milk and many vegetables. Its presence in milk must be especially remembered. The addition of calcic carbonate to milk either causes the precipitation of the acid in the intestine or causes it to be eliminated through the intestine, thus preventing it from reaching the kidneys.

Water is, in the beginning of a nephritis, probably eliminated with more difficulty than any other substance. Later it is eliminated more easily, and finally very easily. In the beginning, therefore, but little water should be given. Later, when diuresis is free, or if it is free from the start, water may be given freely. At this time it is of benefit because it flushes the kidneys and renders solution easier.

In considering drugs in the treatment of nephritis it must be remembered that the first object of treatment is to spare and rest the kidneys. In the acute stage drugs, such as digitalin, caffein and diuretin and so on, can do nothing but harm. They either increase the blood pressure or excite and irritate the kidney unduly and thus do harm. Alcohol is contra-indicated in the acute stage. When uremia is threatening and there is general edema, cathartics and diaphoretics are of much use. The hot-air bath does not work well, as a rule, in children. The hot pack is much better.

The cases of acute nephritis in children may be divided into three main classes.

In the first class the secretion of urine is very small, edema is increasing and uremia is impending. In these cases the object of treatment is to spare the kidneys. They should be put on the lowest possible diet and should be given a very moderate amount of water. Cathartics and diaphoretics should be used freely. They can bear this low diet only four or five days.

This is long enough, however, because by that time they are either dead or the kidneys have begun to secrete again.

In the second class the secretion of urine is reduced, the edema is slight and uremia is not threatening. In these cases cream and milk may be given to meet the needs of the organism. If more food is necessary, other things of high caloric value and not irritating to the kidneys should be given rather than more milk. Such food are cereals, butter and sugar. The amount of water must be varied according to the amount of the urine and the edema. The general principle in these cases is that the less the urine and the more the edema, the less the water.

In the convalescing stage only a part of the diet should be milk. The same principles apply here as in the second class in the regulation of the diet. In these cases, however, water should be pushed.

DR. J. BERGEN OGDEN: I have been very much interested in the papers of the evening and the discussion. Comparatively little has been said in regard to the forms of nephritis in which decapsulation of the kidneys may do good and it seems to me that this is a very important point.

In the New York and Philadelphia *Medical Journal* of June 4, 1904, Dr. A. R. Elliott of Chicago deals with "The Medical Aspects of Decapsulation of the Kidneys for the Cure of Chronic Bright's Disease," and the results of his study are very instructive and interesting. He makes an analysis of 112 reported cases which are divided and classified as follows:

(1) Floating kidney with albuminuria and cylindruria, 29; (2) renal calculus with infected kidney, 1; (3) pyelonephritis, 2; (4) renal sarcoma, 1; (5) subacute glomerulonephritis, 2; (6) arteriosclerotic renal atrophy, 1; (7) chronic interstitial nephritis, 43; (8) chronic parenchymatous nephritis, 33. The two cases of subacute glomerulonephritis, one following scarlet fever, were apparently benefited by the operation. The case of arteriosclerosis renal atrophy recovered from the operation but died from the disease in less than one year. Elliott divides the cases of chronic interstitial nephritis into *early*, of which there were 13, and *advanced*, of which there were 29. In the *early* cases the results were as follows:

Symptomatically improved, 10; unimproved, 2; rendered worse by the operation, 1. In the *advanced* cases the results of operation were: died, 22; improved, 4; unimproved, 2; rendered worse, 1. The results of operation in the cases of chronic parenchymatous nephritis were: died, 13; improved, 12; unimproved, 8.

To me these figures are significant, and important when the question of operative interference arises.

(1) Acute and subacute nephritis, such as follow scarlet fever, and similar to the first case reported by Dr. Elliot here to-night, are apparently benefited by decapsulation, although not the class of cases usually selected for this operation.

(2) Cases of chronic interstitial nephritis, early stage, are apparently improved by the operation. In the advanced cases more than 80% die or show no improvement.

(3) In chronic parenchymatous nephritis fully 36% of the cases which were studied showed beneficial results from the operation of decapsulation.

It seems to me the chance of recovery, or anything more than temporary improvement, is so exceedingly small in the cases of renal decapsulation that any advice in regard to the operation should be most thoroughly weighed, and encouraged only in exceptional cases.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

STATED MEETING HELD JAN. 31, FEB. 1 and 2, 1905.

(Continued from No. 13, p. 379.)

FIRST DAY. — (Continued.)

THE HISTORY OF CEREBROSPINAL MENINGITIS IN AMERICA.

DR. ABRAHAM JACOBI of New York prepared this paper which was read by title.

THE TREATMENT OF CEREBROSPINAL MENINGITIS.

DR. C. G. STOCKTON of Buffalo said that as the disease was self-limited, it was very difficult to find a form of treatment that would prove satisfactory. Again the various epidemics varied so much in the degree of virulence that it was difficult to estimate the effect of measures employed. The disease no doubt occurred as the result of overcrowding and unsanitary conditions. The old treatment of the disease was by blood-letting and liberal doses of mercury. It was still an open question whether these methods would have to be given up for newer ones. Among modern remedies was the hot bath as given by Aufrecht, the puncture of the spinal cord and the injection of various local antiseptics, injections of bichloride of mercury in the vicinity of the spine. In a number of cases the relief afforded by the hot bath has been very marked. It produced a decided lowering of the temperature and was often conducive to rest and quiet. The hot bath had not been employed to as great an extent in this country as in Europe. Lumbar puncture with the injection of a mild antiseptic had attained some popularity, but it could not be shown that it had lessened the mortality. The most important element of treatment was that the patient should be kept in a quiet, dark room to avoid all excitation of the central nervous system. Hot baths should be given and if there were symptoms of pressure puncture of the cord should be undertaken with removal of the fluid, and drainage should be instituted if necessary. Antipyrin aided, not only in reducing the temperature, but made the patient less restless and relieved headache and hyperesthesia. Mercury should be employed as a laxative or to assist in stimulating the organs of elimination. Opium or bromides might be resorted to for the relief of convulsions and pressure symptoms generally. Injections might be employed in severe cases as a *dernier résort*.

THE EYE SYMPTOMS OF CEREBROSPINAL MENINGITIS.

DR. A. E. DAVIS of New York said that locally this disease might produce affections of every portion of the eyeball and of the nerves. Affections of the nerve were mainly responsible for visual symptoms, but these might also be produced by pressure upon the brain centers. The eye symptoms differed greatly in different epidemics. Nystagmus and lagophthalmus are of quite common occurrence. If corneal ulcers developed precautions must be taken to protect the external tunics of the eye by means of vaseline and a protective bandage. Ptosis, unilateral and bilateral, and optic atrophy might occur. In these latter cases vision might be restored in spite of the hopeless appearance of atrophy in the nerve head. He related a case in which the patient had been both blind and deaf and yet both senses had been restored. Certain forms of eye symptoms might aid in the diagnosis of cerebrospinal meningitis. One should be on guard if an equality of pupils with a squint was detected. A conjunctivitis might be the initial symptom in a certain

epidemic; in another epidemic pus in the anterior chamber might be characteristic. The destructive process causing lesions of the nerve might progress to a remarkable degree before the usual vision was affected.

Dr. Morris Manges of New York said that he wished to emphasize with Dr. Councilman, as he had already pointed out, that cerebrospinal meningitis was not simply a meningitis involving only the spinal meninges but the cerebral meninges and cortex as well, and if this fact was borne in mind one could readily see how hopeless any attempt at treatment was. It was important to remember the variations pointed out, the variations in mortality in different epidemics, and this certainly modified enthusiasm over any one plan of treatment. If one could see that picture of thick tenacious false membrane which covered the spinal cord and base of the brain in many instances he could premise the hopelessness of any therapeutic agent. Even after one had apparently rescued a case the danger of sudden death should be borne in mind, as from acute dilatation of the ventricles, *i. e.*, acute hydrocephalus, which might occur as long after the disease as six weeks. Such a case was seen at the Mt. Sinai Hospital. Lumbar puncture was of value in his opinion if the foramen Magende was not closed; it was the closure of this foramen that explained the hopelessness of treatment, locally, in many instances. Yet some attempt should be made in local treatment in every instance. The systematic use of lumbar puncture had been a great aid in diagnosis as well as in treatment; if it did no more than aid in the differential diagnosis it had fulfilled a great and important object. A great many cases were apparently cured by lumbar puncture, many were not affected, and yet in no case had it been known to do harm when properly performed. Anyone in acquiring the proper technic should be prepared to get "dry tapping" and this was not always due to faulty technic; it might be explained by the thickness of the membrane, or by the closure of the foramen Magendie. He said he was surprised to learn how tolerant the spinal canal was of antiseptics, such as lyso and other foreign substances. Yet it should be borne in mind that if the foramen Magendie was closed no form of local therapy was of value. Again if there was thick false membrane to deal with no local therapy was of value. In those cases where failure followed lumbar puncture, or the injection of antiseptics, such as lysol, one could attempt to drain the canal by making a counter-opening above; then with the lumbar puncture below one might get some good result. The result from the use of lysol was better than Dr. Stockton's paper indicated. In the cases reported originally, 123 in number, there were 58% of recoveries. Whether these cases recovered as the result of treatment must be, of course, received with proper reserve. Dr. Morris referred to a severe case of cerebrospinal meningitis treated by Dr. Loomis at Bellevue Hospital with a solution of argyrol; at autopsy the silver salt was found to be distributed not only in the spinal canal, but also over the cortex and base of the brain; therefore, there was some promise of success by antiseptic injections when the foramen of Magendie was open. The hot water treatment he believed to be good, but anyone who had seen a severe case of this disease would recognize the fact that it was not an easy thing to administer such a treatment. These patients might lie in opisthotonos, or curled up, and they hated to be disturbed. If there was no undue irritability the routine use of hot bathing with friction applied, as in the treatment of typhoid fever patients, was to be recommended. But if there was much irritability this, of course, could not be carried out with benefit. Dr. Manges referred to a rash that he had frequently seen in these cases about the joints, which might be best described as a gooseskin rash, and instead of white areas, it appeared as though the margin of the epidermis had been rubbed off and a rough surface left with bleeding papillæ. The occurrence of this rash about the knees and elbows might be of value in establishing a diagnosis. In some cases difficulty was experienced in making a differential diagnosis between this disease and uremic and diabetic coma. A well-marked nephritis with the characteristic acute nephritic urinary findings was quite common in cerebrospinal meningitis and might be among the earliest symptoms and cause much confusion in diagnosis. The presence of sugar in the urine in the early stages of the disease was quite a common occurrence and might be misleading, especially at the onset.

Dr. DeLancey Rochester of Buffalo said that what Dr. Councilman had stated regarding the encephalitis was a very important point. One should bear in mind, too, the fact that all cases of primary infection of serous membranes were accompanied by a certain amount of involvement of the underlying structures, *i. e.*, those that were covered by the serous membrane in question. These epidemics he said occurred at a time when people were shut up in their houses, away from the fresh air, and when the vitality of the individuals was lowered. This enabled the various microorganisms to increase and secure a foothold and develop the disease. Too much stress should not be laid upon the value of Kernig's sign, nor upon any one sign or symptom; symptoms should be grouped together for diagnosis of this disease. A point not mentioned by any of the readers he said was the persistent leucocytosis in cerebrospinal meningitis from the beginning to the end. Lumbar puncture was of value in withdrawing fluid and relieving to a certain extent the pressure within the spinal canal, but the injection of these irritating substances, such as antiseptics, was of doubtful efficacy. The question arose in his mind whether the injection of antiseptics into *any* serous sac was of any value, or did more than act as an irritant there; he was satisfied that such was the case when these substances were introduced into the pleura or pericardium. In the treatment of these cases he emphasized the importance of keeping the patients quiet, the room dark and the patient away from any source of irritation. His practice had been to be persistent in the use of bromides and antipyrin in combination, using them at three or four hours intervals and in considerable sized doses. The persistent use of these sedatives enabled one to move the patient with greater ease, as in giving the hot baths. He also emphasized the importance of attending to the emunctories. The local treatment was of value, such as the application of leeches along the base of the skull and along the spine.

Dr. E. Libman of New York said that one of the most important things to be considered to-day was regarding the methods by which cerebrospinal meningitis spread — what caused epidemics of the disease. Was the disease due to the diplococcus of Weichselbaum or not? Taking 60 cases at the Mt. Sinai Hospital there were found 19 due to the tubercular bacillus, 17 to the streptococcus, 7 to the pneumococcus, 3 to the staphylococcus aureus, 2 to the micrococcus of Pfeiffer, 2 to the bacillus pyocyaneus, etc. Therefore, no one organism caused the disease apparently, or if it did, it was not yet discovered. He referred to a case of a child that had been treated for "pink eye" who later developed cerebrospinal meningitis, and he thought this proved the possibility of the entrance of the microorganism through the conjunctival sac. The diplo-

coccus intracellularis meningitidis of Weichselbaum was found in pure culture in this case. With regard to the sporadic cases he said the general impression seemed to be that these were the milder cases. He distinctly remembered the first case he ever saw in 1899 in New York City in which the patient died within twenty hours; this was a sporadic case, and the diplococcus intercellularis was obtained in pure culture. Therefore, one should not believe that sporadic cases were the milder ones. The meningococcus had been found in the blood in a few instances. He reported the case of a patient suffering from recurrent attacks of fever, with rashes about the joints, in whom the meningococcus was found in the blood on two occasions; after eight or ten weeks the patient developed symptoms of cerebrospinal meningitis and then the organism was developed in pure culture. Another case, a boy, was brought into the hospital after being treated for typhoid fever; he complained of pains in the back of the neck, there was the rash about the joints, the presence of Kernig's sign, and all which pointed to the possibility of cerebrospinal meningitis developing; later the meningococcus was found in the spinal fluid. He said that meningococcus was one of the organisms which caused systemic sepsis independent of any meningeal involvement, and that this organism should be included among those causing general sepsis.

DR. E. D. FISHER of New York said that in 18 cases of cerebrospinal meningitis seen at Bellevue Hospital the meningococcus had been found in all but two; in one case there was found the streptococcus, and in the other the pneumococcus. The diagnosis was never difficult in those that he had seen and lumbar puncture was not required in order to make a diagnosis. The regular course of treatment was pursued. Lumbar puncture seemed to give some relief, but the injection of lysol was not productive of any good, the results not being at all promising. The Kernig's sign was not present in a large proportion of the cases, as related by Dr. Elsner, and he did not place as much value on it as some. All he could learn with regard to the prodromal symptom was that many suffered from general malaise, headache, suddenly became more ill and then were brought into the hospital in a comatose condition. The ordinary course of the disease was about one to five days.

DR. E. S. THOMSON of New York said, regarding the eyes, that cases of conjunctivitis and choroiditis might be avoided by proper care of the eyes, keeping the patient in the dark and using some simple wash. The deeper lesions, of course, were the most serious. In the great majority of the cases there followed a total destruction of the eye; in some cases the trouble subsided without any trouble with the eyes. Optic nerve lesions in this disease were usually toxic in origin and had a tendency to get well. In optic neuritis of a very low grade, the inflammation frequently led to optic atrophy and it was very important that it should be recognized early. Sometimes one had a considerable degree of optic neuritis without any reduction of vision until some time after. Optic neuritis should always be energetically treated because of the possibility of atrophy setting in during the convalescent period.

SPLENIC ANEMIA WITH ACHYLIA GASTRICA.

DR. I. H. LEVY of Syracuse related his experience with two cases of this affection which occurred in twin sisters.

TUESDAY EVENING.

ADDRESS.

DR. CHARLES HARRINGTON of Boston, Mass., Secretary of the State Board of Health of Massachusetts, outlined the history of the laboratories of Massachusetts and demonstrated their numerous benefits to the public. Massachusetts stood for a model for the other states, which it was to be hoped they would not be slow to follow. Many present resolved that they would do all that was possible to hasten the day when New York State could make as good a showing in this respect.

PRESIDENT'S ADDRESS.

DR. HAMILTON D. WEY of Elmira reviewed the mileposts along the way of medical progress during the past century from the performance of the first ovariotomy in 1809 to the work of the present day. He said that the work of the laboratory gave promise of making revelations that would do the greatest amount of good in furthering medical progress. They had already given us a new nomenclature and shown us the manner of propagation and transmission of many diseases, and it was reasonable to expect that many questions that were as yet unsolved would be elucidated in the future. He was glad of the privilege of practicing medicine in this age. There was much satisfaction in successes already attained, as in the Roentgen ray, Finsen light, intubation, a knowledge of the rôle of insects in spreading disease, the relation of mosquitoes to yellow fever, etc. Hospitals and educational facilities for physicians had multiplied to a wonderful extent. He spoke of the European customs which permitted the *savant* to study problems affecting the public welfare under government protection unhampered by care in regard to everyday necessities. The sum of $85,000 was available for work by the State Health Department. He suggested that every county should have a laboratory with an expert laboratory worker. This would make it possible for the country practitioner to keep abreast of the times and would be of inestimable service in combatting disease.

SECOND DAY, WEDNESDAY, FEB. 1, 1905.

THE FAMILY PHYSICIAN.

DR. ROBERT P. BUSH of Horseheads discussed the relations of the specialist to the general practitioner. He said that in spite of the growth of specialism, the general practitioner must still be the main feature of medical work. He set forth the numerous ways in which the physician could exert his influence in the home and in the community. He emphasized his importance in protecting the health of school children. He could make his influence felt in the sanitary education of the young; children were now taught the evil effects of alcohol, but they should also be instructed how to avoid bad hygiene in other respects as well, for many defects in diet and hygiene might be responsible for a craving for stimulants.

DR. ABRAHAM JACOBI of New York thought that it was eminently proper that such a paper should be read occasionally in order that the general practitioner might be kept awake to his great responsibilities. The general practitioner was the guardian of the patient against the fads of the specialist as well as the guardian of the public health. It was also well to remind the specialist occasionally that the general practitioner was still in existence.

(To be continued.)

Recent Literature.

A Handbook of Surgery for Students and Practitioners. By FREDERIC R. GRIFFITHS, M.D., Surgeon to the Bellevue Dispensary, New York City; Assistant Surgeon at the New York

Polyclinic School and Hospital. 12mo volume of 579 pages, containing 417 illustrations and bound in flexible leather. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This book was written to serve as a working guide for the student and general practitioner; to present a brief outline of the principles and practice of surgery and also the essentials of the subject as concisely as is consistent with clearness. It is an attractive, well written, conveniently arranged volume. The author has stuffed it with interesting and valuable data. He has considered not only the subjects usually found in general and operative surgery, but has also introduced the specialties of medicine, such as diseases of the eye, ear, nose, throat, genito-urinary diseases, diseases of women, etc., also a chapter on medical jurisprudence, a summary of the details of a medico-legal examination consisting of a table of the comparative weights and measures of parts and organs, tests for common poisons, details of examination for life insurance, rights and liabilities of physicians, also insanity, pregnancy, infanticide, survivorship, rape and other subjects which a medical practitioner might be at times called upon to consider. The book is systematically written. A lesion is first defined, the etiology briefly stated, the symptoms described the treatment given, and last the prognosis. The text is well illustrated. One cannot expect that modern surgery can be condensed into a book of this size and find any great detail of description. In fact, the writer of such a book can often do no more than enumerate the bare essentials of a subject. As an outline or a manual it is a well-written work and an excellent book for ready reference. There is a surprisingly large amount of information and data condensed into the volume, small as it is.

The Practical Application of the Röntgen Rays in Therapeutics and Diagnosis. By William Allen Pusey, A.M., M.D., and Eugene Wilson Caldwell, B.S. Second edition, 1904. 690 pages. W. B. Saunders & Company.

The fact that in one year a second edition of this work has been found necessary is proof that the first has met with deserved success. The present edition has been thoroughly revised and enlarged by one hundred pages. The first part, which deals with apparatus, remains unchanged, but the chapters of the second part which deal with the therapeutic application of the Röntgen rays have been rearranged and amplified. The chief changes are in those most important subjects, tuberculosis and carcinoma. These chapters have been completely revised, enriched by much new matter and brought up to date. Nearly every other chapter also shows some change, either by the introduction of new diseases in which the Röntgen rays have been used or by the citation of new illustrative cases. For example, in the chapter on Acne, Dr. Pusey has tabulated his cases showing the type, duration of the disease, length of treatment, results and after-history; in the section on Blastomycosis, he gives three cases which have been treated since the publication of the first edition; in chapter sixteen, eight new diseases are added. The same excellence of illustration which characterized the first edition is present in the second, while careful revision and much important additional subject matter makes the latter far more valuable as a text-book.

A Manual of Personal Hygiene: Proper Living upon a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Second edition, revised and enlarged. 12mo, pp. 441, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

We commented in detail and most favorably on the first edition of this book which appeared several years ago. In looking over this second edition we see no reason to change the favorable opinion then formed. The same method which characterized the first edition has been continued in this, with some slight enlargement of the subject matter. There have, for example, been added illustrative chapters on domestic hygiene and home gymnastics, together with an appendix giving methods of hydrotherapy, thermotherapy, mechanotherapy and first aid methods in emergencies. The book is a practical, common sense treatment on matters with which the laity should be acquainted, written in a style entirely intelligible to the lay reader.

Blakiston's Quiz-Compends. A Compend of Medical Latin. Designed expressly for Elementary Training of Medical Students. By W. T. St. Clair, A.M. Second edition, revised. Philadelphia: P. Blakiston's Son & Co. 1904.

This small volume in quiz-compend form purports to be designed expressly for elementary training of medical students in Latin. It contains many facts presented in such a way that it is hard to see how an ordinary medical student could derive from it the information intended. We fear that the wretched Latin, already too common, will not be improved by means of such as this.

Handbook of Diseases of the Ear. For the use of Students and Practitioners. By Richard Lake, F.R.C.S., Eng., Surgeon, Royal Ear Hospital, Lecturer on Practical Otology, Medical Graduates College. With three colored plates. New York: William Wood & Co. 1903.

This is an eminently practical handbook of about 220 pages, in addition containing an appendix of formulæ for use in the ear. There are several illustrations, and three plates in colors, showing various pathological conditions of the drum. The work is very complete, and its teachings may be safely followed by the student or general practitioner. A special chapter on "The Influence of Diseases of the Middle Ear on Life Assurance" is included.

THE BOSTON

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MEDICINE AND RELIGION.

THERE is evidence on every hand that the Church is coming into increasingly close relation with the general work of life, and endeavoring as never before to understand and appreciate other points of view than its own. An excellent example of this tendency is shown in the Sunday evening "lay sermons" which are now being held under the auspices of the Old South Church in this city. The course of addresses has been given the appropriate title "Vocation and Religion," and up to this time the religion of an educator, the religion of a man of letters, the religion of a jurist and the religion of a physician have been discussed by President Tucker, Mr. Mabie, Justice Brewer and Dr. Cheever, respectively. More are to follow in which the religious ideals of other departments of knowledge will find expression from such men as Professor Palmer of Harvard, and Professor Du Bois of Yale.

It is, however, to Dr. Cheever's remarks that we wish to draw attention at this time. In them, one could see the product of a ripe experience in dealing with men both sick and well, and a loyalty to his profession, which few men have expressed with greater terseness and force. Whatever his hearers may have thought of the abstract religious conceptions of the physician, as exemplified by Dr. Cheever's remarks, they could have been left in no doubt as to the dignity of medicine as a profession and its ideals of service. The antithesis drawn between the physician and the priest was perhaps more sharply defined than some of us might think the conditions of life justify, but Dr. Cheever was speaking of the two professions in the abstract, rather than in the concrete, and he drew a distinction which it is always well to ponder. "The object and aim of medicine," he said, "was and is to relieve bodily suffering and to prolong life — nothing more. The object and aim of religion was and is to assure the mind of another life, but not to attach such importance to the present one. Medicine deals with the body. Religion deals with the soul."

The faults and shortcomings of the Church with reference to medicine and medical practice were adduced, as showing the natural estrangement which had grown up between the two callings. The physician, taking nothing for granted, reasoning deliberately, prolonging life by every means in his power, stands out in contrast to the priest, whose mind is bent on the future and who regards the body as of secondary importance. Dr. Cheever's attitude was wholly judicial; he weighed the two sides fairly, and while clearly impressed with the saneness of the physician's attitude, he had no words of reproach for the other. "Both professions have their martyrs. The medical martyrs are not canonized."

The tendencies, periods and beneficent discoveries in medicine were alluded to in that peculiarly epigrammatic style, with which we are familiar and a tribute was paid to the inductive method. A paragraph well worthy of quotation was as follows: "Every research of the physician is practical and pursued for this end, — to relieve suffering or to prolong life; nothing else. There is no room for the visionary or the doubtful. It is know or not know; it is try and keep trying. The physician's aims as compared with the priest's may be contrasted as the microscope and the telescope. The former direct, practical, giving knowledge of daily use; exposing disease; revealing germs; suggesting remedies; all now, all for the body. The telescope, visionary, almost incomprehensible by its measurements of time and space and by its demonstration of the movements of the solar system, applicable to our daily life and needs, but in the stellar spaces, leading the mind up to the grandeur of the universe and the smallness of the individual."

In general the address contained much that should be perpetuated in print, and this, we believe, is the intention of the projectors of these noteworthy addresses, which are likely to throw many sidelights on the problems which the Church will be called upon to face in the immediate future. If in Dr. Cheever's final sentences:

"Medicine believes what it knows; it believes no more," we find a somewhat arid soil for the propagation of our faith, we should seek balm in the fact that he is expressing here simply a professional ideal which, as physicians, we shall do well to follow; it limits belief, but does not exclude hope.

TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS.

Sporadic cases of epidemic cerebrospinal meningitis are no doubt of relatively frequent occurrence, although they may escape observation and be confused with varieties due to other organisms than the Diplococcus intracellularis. The present newspaper excitement over the disease is, however, in part justified by the increased frequency of the cases in this and other communities. New York has been a peculiar sufferer during the last six months, and many cases have been reported with frequent deaths. In Boston the daily press has been assiduously spreading reports of the wide prevalence of the disease in this community. Probably more cases than usual are being observed, but certainly not in sufficient numbers to indicate an epidemic.

Much as we have learned of the etiology and pathological anatomy of the affection through the researches of Councilman, Mallory, Wright and others, the treatment has remained almost wholly empirical. The general introduction of lumbar puncture and the proved harmlessness of this operation, if properly performed, has unquestionably been of use in the treatment of this type of meningitis. Many clinicians now resort to a puncture as a routine measure, withdrawing a sufficient amount of fluid to reduce the intracranial pressure. That this result is accomplished in the great majority of cases is shown by the fact that patients are quickly relieved of certain of their symptoms and not infrequently a continued improvement dates from the abstraction of the cerebrospinal fluid. In those cases where there is no evidence of intracranial pressure, the operation may well be omitted until such signs occur unless it be desirable to obtain the fluid for diagnostic purposes. In general the consensus of opinion is that lumbar puncture has proved of distinct benefit in the treatment of these cases.

A further measure, apparently as yet purely empirical, to which considerable attention has of late been drawn is the use of anti-diphtheritic serum, injected under the skin in the same manner as in diphtheria. So far as the evidence at present available goes, it appears that this method of treatment is at least worthy of extended trial. In a recent number of the *Medical Record*, Dr. Edward Waitzfelder reports the treatment of a series of seventeen cases at the Gouverneur Hospital in New York. Dr. Waitzfelder has had a large experience in the treatment of meningitis by the ordinary methods, and, as a result of his recent work, is convinced that in lumbar puncture and anti-diphtheritic serum we have a probable means of combating the disease far superior to any yet attempted. Attention has recently been drawn to this matter through the investigations of Dr. Arthur J. Wolff, bacteriologist of the Hartford Board of Health, whose results have not yet been made public so far as we are aware. In a personal letter to the Gouverneur Hospital, Dr. Wolff urged the treatment by antitoxin, with the result that Dr. Waitzfelder used it in the seventeen cases to which we have alluded. Of these seventeen cases five completely recovered, three died, and nine were still under observation at the time of the publication of the article, of whom five, it was thought, would recover, four being doubtful. Such figures as these, of course, mean very little, but the personal impressions of Dr. Waitzfelder, who apparently at the outset was in no way prejudiced in favor of the treatment, should have weight and should lead to further therapeutic attempts along the same lines.

It will naturally take many thousand cases, and a very careful comparison of results, to determine conclusively the efficiency of this or any other form of treatment. Nevertheless, in view of what we know, and also of what we do not know, regarding antitoxins, it is a justifiable use of empiricism to prescribe diphtheria antitoxin, particularly in view of the fact that no harm apparently has come from its use in any of the reported cases. A beginning has been made in this city, at the Boston City Hospital, the Massachusetts General Hospital, and the Children's Hospital in a trial of the treatment, but as yet with no results worthy of recording on account of the fewness of the cases and the shortness of the time which has elapsed since the treatment was begun. We have no doubt, if the cases continue to appear as they have during the past few months, that opportunity will be afforded for a further testing of the treatment, and, we hope, of further thoroughgoing researches on the bacteriological side of the problem. In the meantime, it is a satis-

faction to have some method at our disposal which, although empirical, is harmless and affords at least the possibility of benefit.

THE IMPORTANCE OF MINIMIZING THE PERCUSSION STROKE IN THE DELIMITATION OF AREAS.

WE have received from our venerable friend, Dr. W. T. Gairdner, now of Edinburgh, but formerly and for many years Professor of Medicine in the University of Glasgow, a reprint of a short article contributed by him to the last November issue of the *Edinburgh Medical Journal* on the methods of percussion employed in Edinburgh and Glasgow, with especial reference to the importance of minimizing the stroke in most cases in the delimitation of areas. During the thirty-eight years that Dr. Gairdner taught he caused the importance of minimizing the stroke to be dwelt upon. Since his removal to the capital, his attention has been directed to certain differences in the methods of tuition in the two cities, and among these especially to the method to be employed in percussion with reference to the force of the stroke, and the conclusions to be drawn from the differentiation of results in various areas in which delimitation is of a great consequence. In the diagnosis of actual practice this is by no means as small a matter as it might at first seem to the thoughtless, and we the more willingly call attention to Dr. Gairdner's contention, apart from our belief in its soundness, as, *nomine mutato*, the teaching on this point in Glasgow and Edinburgh represents the teaching in Boston and another medical center in this country as well. Dr. Gairdner tells us that he discontinued the habitual use of Wintrich's hammer prior to 1872, after using it for some years, because he found that the result of using it habitually was to cultivate a habit of too strong and, therefore, inexact percussion. He quotes part of an article contributed by him to one of the last issues of the *Medical Times and Gazette* (Dec. 19, 1885), from which we make the following extract:

"Most persons, and almost all beginners, in employing percussion for the delimitation of organs, *err by percussing too hard*. The desire is, naturally enough, to get a definite and recognizable *quantity* of sound; and, by percussing hard, more sound is got, of course, than when, as in the observations just referred to, a carefully minimized stroke is employed. But in increasing the quantity of sound so as to make it apparently or really more easily audible, you are, in most cases, *exactly in a corresponding degree reducing the value of your results*. In other words, the carefully minimized stroke gives you approximately exact definitions: while the stronger stroke necessarily gives you less exact, or wholly inexact, limits of dull and clear areas under like circumstances; the degree of inexactness or vagueness of the results increasing immensely with every degree of added force employed, so that, according to the quite ordinary mode of percussion used by many persons, and by almost all young or inexperienced persons, nothing like exact results can ever be obtained at all. . . . For it is a physical law which no amount of experience can evade or set at nought, that percussion does *not* operate directly downwards or in the direction of the impact only; but, in proportion to the strength of the stroke, laterally, diagonally, and in every possible direction in educing sound."

This teaching carries us back to that of Dr. Henry I. Bowditch, forty years ago, in the Harvard Medical School, and those traditions have been adhered to in this community down to the present day.

Two quotations from an excellent little book by Drs. Cutler and Garland, published in 1882, and now unfortunately out of print, put us again in accord with Dr. Gairdner. "According to our own opinion the best pleximeter and hammer are the human finger." "In regard to the relative merits of light and heavy percussion, undoubtedly heavy percussion has its place and serves a good purpose, especially over thick muscles on the back, and in bringing out the dullness of deep-seated consolidation. In outline percussion, however, on the lateral and anterior aspects of the body, light percussion alone should be employed in crossing the boundary between a resonant and a non-resonant organ, if our blows are heavy, the resonance of the former organ will be so transmitted over the latter that the line of demarcation will apparently lie several centimeters away from its actual position. We have found that best results are obtained with extremely light percussion."

MEDICAL NOTES.

RESIGNATION AND APPOINTMENT OF DR. ARTHUR R. CUSHNY. — Dr. Arthur R. Cushny, formerly professor of materia medica and therapeutics at the University of Michigan, has left this country to accept a similar chair in the University of Medicine in London.

THE VACANCY AT JOHNS HOPKINS. — The trustees of Johns Hopkins University and Hospital have appointed Dr. Lewellys F. Barker to fill the vacancy caused by the resignation of Dr.

Osler as Professor of Medicine. Dr. Barker has been Professor of Anatomy and more lately of Medicine at the Rush Medical School, Chicago; he is a graduate of Toronto Medical School in 1890, and was for some years at Johns Hopkins, before going to Chicago. Dr. William S. Thayer, formerly Associate Professor of Medicine, has been appointed Professor of Clinical Medicine. He is a graduate of the Harvard Medical School, 1889. Dr. Barker is thirty-seven years old, and Dr. Thayer is forty years old.

Physicians in French Cabinet. — The new French cabinet has two physicians, Dr. A. E. Gauthier, at the head of public works, including railroads, and Dr. J. Dubief, minister of commerce. Dr. Dubief had for many years been connected with the asylum treatment of the insane. The under secretary of finance, Dr. Merlou, is likewise a physician.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, April 5, 1905, three were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 24, scarlatina 40, typhoid fever 5, measles 16, tuberculosis 56, smallpox 0.

The death-rate of the reported deaths for the week ending April 5, 1905, was 20.55.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 1, 1905, was 246, against 226 the corresponding week of last year, showing an increase of 20 deaths, and making the death-rate for the week 20.89. Of this number 134 were males and 112 were females; 243 were white and 3 colored; 149 were born in the United States, 94 in foreign countries, and 3 unknown; 51 were of American parentage, 166 of foreign parentage, and 29 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 28 cases and 3 deaths; scarlatina, 34 cases and 3 deaths; typhoid fever, 6 cases and 2 deaths; measles, 10 cases and no deaths; tuberculosis, 53 cases and 17 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 40, whooping cough, none, heart disease 23, bronchitis 9, and marasmus 4. There were 14 deaths from violent causes. The number of children who died under one year was 47; the number under five years 65. The number of persons who died over sixty years of age was 68. The deaths in public institutions were 79.

Precautions against Cerebrospinal Meningitis. — The Cambridge Board of Health has seen fit to pass stringent regulations with reference to the preparation for burial of persons dying with cerebrospinal meningitis. The regulations consist in directions to the undertakers whereby the body is to be wrapped in a sheet saturated with an antiseptic solution and tightly sealed in the casket. Undertakers are furthermore required to furnish the board of health with a sworn statement that these regulations have been complied with.

Defeat of Bill for Establishment of Leper Hospital. — A committee of the Massachusetts Legislature has ruled that the bill providing for the establishment of a hospital for persons afflicted with leprosy or other contagious disease ought not to pass.

NEW YORK.

Collection of Hospital Saturday and Sunday Association. — Although the returns are not yet entirely complete, it has been announced that the annual collection of the Hospital Saturday and Sunday Association will this year amount to over $90,000, as against $75,000 last year. The contributions from the churches are stated to be nearly double those of last year, although the fund has not been proportionally increased by the gifts from other sources.

Inspection for New Census. — Health Commissioner Darlington has appointed from the civil service lists 150 inspectors for the purpose of taking the new census of the city under the auspices of his department. The census will cost approximately $35,000 and each inspector is to receive $100 a month while the service lasts. It will include not merely an enumeration of the inhabitants, but also careful attention to sanitary conditions, especially in the crowded tenement districts.

A "Radium Cure." — On March 22, Drs. H. A. Kane and W. N. Hale, who were lately associated in conducting a "radium cure" and swindled a patient out of $10,000, pleaded guilty in the Court of General Sessions to an indictment charging them with grand larceny; and on the day following they were sentenced to imprisonment in the penitentiary for four and eight months respectively. This leniency was the result of recommendations by District Attorney Jerome and by the counsel for the County Medical Society (at whose instance they were arrested), in consequence of their having returned the entire

amount extorted from their victim. In consequence of their conviction the prisoners will be debarred from ever again practicing medicine in New York.

BEQUESTS. — Among the charitable bequests in the will of the late William Vogel are $5,000 to Mt. Sinal Hospital and $1,000 each to the Lebanon Hospital, the Sanitarium for Hebrew Children, and the Montefiore Home and Hospital for Chronic Invalids.

PROVISION FOR HOSPITALS. — Mr. R. Fulton Cutting, President of the Association for Improving the Condition of the Poor, in carrying out the instructions of the delegates at the recent conference held under the auspices of his society, has appointed a committee of twelve to consider the needs of the hospitals and propose methods for securing more adequate provision for them. On the committee are ex-Mayor Low and other prominent laymen and the following physicians: Drs. Frederick Sturges, John A. Wyeth and John W. Brannan.

POISONING BY ILLUMINATING GAS. — Two cases of fatal poisoning by illuminating gas, of unusual interest, have recently been treated at the Presbyterian Hospital. A mother and daughter, Mrs. and Miss Hucotis of White Plains, while visiting in New York, were overcome by escaping gas during the night and found unconscious in their room the next morning. They were promptly removed to the hospital, but notwithstanding all treatment, both remained in a comatose condition until death, which did not occur until after sixteen days in the daughter's case, and eighteen days in the mother's. The coma varied in intensity at times, but in neither instance was consciousness once recovered. There was also, as might be expected, progressive and marked emaciation. In both cases the autopsy showed an extensive area of degeneration and softening in the brain, due, it would appear, to interference with the circulation by clotting.

Obituary.

GEORGE F. KEENE, M.D.

DR. GEORGE F. KEENE, Superintendent of the State Hospital for the Insane, Howard, R. I., died March 13, 1905, of pneumonia and Bright's disease after a brief illness. The deceased was born in Whitman, Mass., Oct. 22, 1853. He graduated at Brown University in 1875 and at the Harvard Medical School in 1879. He was an interne in the Boston City Hospital. In May, 1880, Dr. Keene began private practice in Providence. In 1884–85, he was a substitute lecturer on physiology at Brown University. In March, 1883, he was appointed physician to the State Institutions at Cranston, and in 1886 he became Deputy Superintendent of the State Hospital for the Insane. Later, when the hospital became a separate department, he became its first superintendent. Dr. Keene had held numerous positions of honor in city, state and national societies. He is survived by a widow and two children.

Dr. Keene was a well-informed physician and not a specialist in the narrow sense. While his chief concern was nervous and mental diseases, his advice was frequently sought in general medicine, and he had considerable practice as a consultant. He was often engaged as an expert witness in medico-legal cases. As an executant he had much ability and labored hard and effectively under great difficulties to raise the standard of care and treatment at the State Hospital along scientific lines. His death is greatly deplored by the profession of Rhode Island, by whom he was held in the highest esteem.

Miscellany.

"EXCURSIONS" AND "SIDE" TRIPS FROM PORTLAND, ORE.

DR. K. A. J. MACKENZIE, Chairman of the Committee of Arrangements for the meeting of the American Medical Association at Portland, Ore., sends a statement in regard to the outside attractions which are offered. It is very persuasive. We learn therefrom that Portland is a city of approximately 150,000 inhabitants. The climate in July is delightful, the days never excessively warm and the nights always cool and refreshing. It is situated on the beautiful Willamette River, six miles from the Columbia (by trolley line) and 100 miles from the ocean.

From any of the elevated points back of the city, easily accessible by car lines, can be seen the snow-capped peaks of Mount Hood, Mount St. Helens, Mount Ranier, Mount Adams and Mount Jefferson, ranging from 10,000 to 14,000 feet in altitude, presenting a view such as perhaps cannot be obtained from any other city in the world.

The social features of the entertainment include car rides to these view points; a river excursion up the river through the great gorge of the Columbia, where the basaltic cliffs rise on either side to a height of 3,000 to 4,000 feet, over which plunge the waters of some of the most beautiful falls in the United States or the world; a railroad excursion to the Pacific Ocean and a day on the beach.

These and other social events will be afforded delegates and members.

"Side" Trips. — Arrangements have been made for side trips for those who may desire them, at reduced rates, to Alaska, Japan and the

Hawaiian Islands! The following rates have been obtained for a party of not less than twenty to each place: San Francisco to Honolulu and return, $110; San Francisco to Yokohama and return, $240; San Francisco to Hong Kong and return, $270; Seattle or Tacoma to Alaska and return, $70.

The trip to Alaska takes twelve days.

Reservations for the trip to Honolulu, Yokohama or Hong Kong must be made before July 1.

A trip to Cloud Cap Inn, at snow line of Mount Hood, situated at the foot of the glacier of Mount Hood, at an elevation of 7,000 feet, is easily made from Portland at small expense of money and time. The trip can be made from Portland to Mount Hood by daylight, at a round-trip fare of $9.50. Expense at the inn, $3 per day. Ascent of the mountain to its summit can be made from this point in one day. The route is by rail to Hood River; thence twenty-seven miles by stage to the Inn. The stage trip is through magnificent forests and amid continuous mountain scenery unsurpassed in the world.

TREATMENT OF HEMOPTYSIS.

Francis Hare (London, England) was led to try inhalation of amyl nitrite in hemoptysis on physiologic grounds. He argued that the known dilative influence of the drug upon the peripheral systemic arterioles would cause fall of blood pressure in the aorta, left ventricle, left auricle and ultimately in the pulmonary arterioles. He gives the results obtained in the first nine cases (8 tuberculous, 1 mitral). Sixteen attacks of hemoptysis were treated by amyl nitrite; in all save one, the bleeding ceased in less than three minutes, for the most part instantaneously; in the one exception, there was an immediate retardation, but cessation did not occur for ten minutes. The drug does not interfere with cough, hence retention of blood and subsequent septic pneumonia are obviated. The treatment is safe and easily applied by the patient himself. — *American Medicine*, April 1, 1905.

Correspondence.

FIFTEENTH INTERNATIONAL MEDICAL CONGRESS, LISBON, PORTUGAL, APRIL 19–26, 1906.

March 30, 1905.

Mr. Editor: The Fifteenth International Medical Congress will be held at Lisbon in April, 1906.

At a meeting of the National American Committee, held at St. Louis last September, officers and members were appointed to represent the Congress.

The Executive Committee appointed from this group were, Frank Billings, M.D., William Osler, M.D., Frederick C. Shattuck, M.D., Abram Jacobi, M.D.; and J. H. Musser, M.D., chairman.

Any communications regarding the presentation of papers at this Congress can be sent to Miguel Bombarda, secretary at Lisbon; or to Dr. Ramon Guiteras, secretary for this country.

Very truly yours,

Ramon Guiteras, M.D., *Secretary*,
75 W. 55th Street, New York.

RECORD OF MORTALITY

For the Week ending Saturday, March 25, 1905.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Cerebro-spinal Menin-gitis.
New York	3,908,644	1,522	426	29.31	19.38	2.50	.66	5.58
Chicago	1,990,750	581	185	23.75	18.24	.69	.17	—
Philadelphia	1,407,968	—	—	—	—	—	—	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	234	64	22.64	14.10	.85	.85	.43
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	88	23	20.44	28.40	2.27	—	2.27
Boston	617,950	269	44	17.22	20.09	1.91	.48	.95
Worcester	136,925	57	15	18.91	18.91	—	2.70	8.10
Fall River	119,349	34	21	29.41	20.59	2.94	—	—
Lowell	104,402	43	17	16.27	18.60	—	—	9.30
Cambridge	100,908	31	6	9.68	25.81	—	—	3.22
Lynn	96,375	26	9	11.53	34.61	—	—	7.69
Lawrence	72,348	19	3	21.05	5.26	—	—	10.52
Springfield	72,020	—	—	—	—	—	—	—
Somerville	70,413	19	4	15.79	15.79	—	—	—
New Bedford	68,863	25	6	16.00	12.00	—	—	—
Holyoke	50,588	25	6	20.00	24.00	4.00	4.00	—
Brockton	46,601	67	2	—	—	—	—	—
Newton	39,310	15	1	—	6.67	—	—	—
Haverhill	39,061	9	—	55.55	11.11	—	—	11.11
Malden	37,305	12	4	8.33	—	—	—	—
Salem	37,188	12	3	8.33	—	8.33	—	—
Chelsea	36,499	13	2	15.40	7.70	—	—	7.70
Fitchburg	36,335	3	3	—	—	—	—	—
Taunton	34,577	15	5	40.00	26.67	—	—	—
Everett	30,309	10	1	—	—	—	—	—
North Adams	29,201	10	2	20.00	—	10.00	—	—
Quincy	26,758	5	2	—	80.00	—	—	—
Gloucester	26,121	7	2	14.30	—	—	—	—
Waltham	25,797	6	1	—	—	—	—	—
Brookline	25,576	9	—	—	11.11	—	—	—
Pittsfield	22,870	19	—	15.79	5.26	—	—	10.52
Medford	21,856	2	—	—	50.00	—	—	—
Chicopee	21,692	8	2	12.50	25.00	—	—	12.50
Northampton	20,314	8	2	—	62.50	—	—	—
Beverly	15,807	2	—	50.00	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	8	1	—	—	—	—	—
Adams	14,745	6	1	16.67	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	2	0	50.00	—	—	—	—
Newburyport	14,478	—	—	—	—	—	—	—
Woburn	14,315	1	—	—	100.00	—	—	—
Melrose	13,819	6	—	33.33	—	—	—	—
Westfield	13,809	5	—	—	20.00	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	1	1	—	100.00	—	—	—
Revere	13,609	2	1	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,394	2	1	—	50.00	—	—	—
Southbridge	11,716	3	—	33.33	—	—	—	—
Watertown	11,575	3	2	33.33	—	—	—	33.33
Weymouth	11,350	1	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,726; under five years of age, 1,007; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 803; acute lung diseases 674, consumption 441, scarlet fever 19, whooping cough 24, cerebrospinal meningitis 111, smallpox 2, erysipelas 16, puerperal fever 28, measles 16, typhoid fever 31, diarrheal diseases 89, diphtheria and croup 63.

From whooping cough, New York 12, Chicago 9, Philadelphia 3. From scarlet fever, New York 13, Philadelphia 1, Baltimore 2, Providence 1, Somerville 1, Pittsfield 1. From cerebrospinal meningitis, New York 85, Chicago 2, Baltimore 1, Providence 2, Boston 2, Worcester 3, Lowell 4, Lynn 2, Pittsfield 2, Lawrence 2, and Cambridge, Brockton, Haverhill, Chelsea, Chicopee and Watertown, 1 each. From smallpox, Chicago 2. From erysipelas, New York 10, Chicago 1, Baltimore 2, Boston, Worcester and Holyoke, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,009,377, for the week ending March 18, 1905, the death-rate was 15.8. Deaths reported 4,740; acute diseases of the respiratory organs (London) 158, whooping cough 108, diphtheria 45, measles 181, smallpox 2, scarlet fever 36.

The death-rate ranged from 3.9 in Bournemouth to 27.4 in Portsmouth; London 15.6, West Ham 14.3, Brighton 15.6, Southampton 22.7, Plymouth 13.5, Bristol 15.0, Birmingham

16.1, Leicester 12.8, Nottingham 19.9, Birkenhead 13.9, Liverpool 20.2, Wigan 15.1, Bolton 17.3, Manchester 14.6, Salford 13.5, Halifax 14.9, Bradford 15.8, Leeds 15.9, Hull 14.5, Sheffield 18.4, Newcastle-on-Tyne 21.7, Cardiff 11.9, Rhondda 21.3, Merthyr Tydfil 18.4, Wallasey 10.9.

METEOROLOGICAL RECORD.

For the week ending March 25, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S., 19	29.84	48	56	39	84	84	84	S W	N E	14	10	R.	R.	.12
M., 20	30.16	34	39	29	100	80	90	N E	N E	16	8	O.	O.	.08
T., 21	30.12	32	35	28	76	93	86	E	N E	20	18	O.	N.	.48
W., 22	31.73	33	38	28	100	62	81	N	E	15	4	O.	C.	.07
T., 23	30.40	35	40	30	64	74	69	N W	S	4	8	F.	C.	0
F., 24	30.27	40	47	32	91	88	90	S	S E	5	6	O.	O.	0
S., 25	29.86	49	57	41	87	88	88	S E	N W	14	15	R.	O.	.22
☞	30.34		45	33			84							.97

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

RECENT DEATHS.

J. OSCROFT TANSLEY, M.D., of New York, a specialist in diseases of the eye and ear, died on March 25, in the sixty-first year of his age. He was graduated from the College of Physicians and Surgeons, New York, in 1877, and was formerly ophthalmic surgeon to the Northeastern Dispensary and other institutions.

FREDERICK DANNE, M.D., a well-known physician of New York, died on March 27, in the sixty-ninth year of his age. He was born in New York City, on Feb. 12, 1837, and was a graduate of Brown University. He received the degree of M.D. from the New York Medical College in 1863 and afterwards studied for a considerable time in Germany.

CHARLES H. B. ZEISER, M.D., of New York, died on March 25, from cerebrospinal meningitis. During the two weeks before his illness which lasted less than forty-eight hours, he is stated to have attended a number of cases of meningitis.

RICHARD H. SULLIVAN, M.D., a prominent physician of the Bedford district of Brooklyn, N. Y., died on March 27, aged fifty years. He was born in Brooklyn and educated at Seton Hall in New Jersey. He was graduated from the medical department of the University of the City of New York in 1883.

CHARLES A. OLCOTT, M.D., of Brooklyn, died from pneumonia on March 30, in the fifty-first year of his age. He was a native of Brooklyn, and son of the late Dr. Cornelius Olcott. He was graduated from Bellevue Hospital College in 1876, and at different times was surgeon of the Brooklyn Fire Department and of the 13th Regiment, New York State National Guard. He was also on the attending staff of St. John's Hospital.

WILLIAM BODENHAMER, M.D., of New Rochelle, N. Y., died on March 31, from pneumonia, in the ninety-seventh year of his age. He practiced at different times in New York City and in Washington, and was the family physician of the late Commodore Vanderbilt, Governor Curtin of Pennsylvania, and other prominent persons. He was an authority on intestinal diseases and wrote a book on rectal medication. He was also a frequent contributor to periodical medical literature. He is said to have been the oldest resident of the town of New Rochelle.

FRANK H. RICE, M.D., a well-known surgeon of Passaic N. J., died on March 28. While engaged in performing an operation at the Passaic General Hospital on the afternoon of that day he was seized with a sudden faintness, and soon after being conveyed to his residence he expired. He was seventy-five years old.

THE DINNER TO DR. OSLER.

Those desiring invitations to subscribe to the Osler dinner can obtain the same by applying to the chairman, Dr. James Tyson, 1506 Spruce St., Philadelphia, until April 20.

BOOKS AND PAMPHLETS RECEIVED.

Ten Lectures on Biochemistry of Muscle and Nerve. By W. D. Halliburton, M.D., F.R.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Pneumonia and Pneumococcus Infections. By Robert B. Preble, A.B., M.D. Illustrated. Chicago: Cloyd J. Head & Co. 1905.

A Compend of the Practice of Medicine. By Daniel E. Hughes, M.D. Seventh Revised Edition. Edited, revised and in parts rewritten by Samuel Horton Brown, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Report of the Trustees of the Massachusetts Hospital for Epileptics for the Year ending September 30, 1904.

Gibt es eine Prädisposition für Krebs und worin besteht sie? Von Max Schüller. Reprint.

University of California Publications. Physiology. On the Toxicity of Distilled Water for the Fresh-Water Gammarus. Suppression of this Toxicity by the Addition of Small Quantities of Sodium Chloride. By G. Bullot.

Regarding Hamlet's Sanity, and a Few Quotations from Shakspere showing his Acquaintance with Medical and Other Sciences. By John W. Wainwright, M.D. Reprint.

A Treatise on Diseases of the Nervous System. By L. Harrison Mettler, A.M., M.D. Illustrated. Chicago: Cleveland Press. 1905.

Thirty-fifth Annual Report of the State Board of Health of Massachusetts. Boston: 1904.

Clinical Hematology. A Practical Guide to the Examination of the Blood with Reference to Diagnosis. By John C. Da Costa, Jr., M.D. Second Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

A Dictionary of New Medical Terms, including upwards of 38,000 words and many useful tables, being a supplement to "An Illustrated Dictionary of Medicine, Biology, and Allied Sciences." By George M. Gould, A.M., M.D. Based upon recent Scientific Literature. Philadelphia: P. Blakiston's Son & Co. 1905.

An Analytical Study of Twenty-eight Cases of Arthritis, with Special Reference to Gout and its Treatment. By Charles C. Ransom, M.D. Reprints.

University of California Publications. Physiology. Further Experiments on Heterogeneous Hybridization in Echinoderms. By Jacques Loeb. Influence of Calcium and Barium on the Secretory Activity of the Kidney. By John Bruce MacCallum.

Note on the Galvanotropic Reactions of the Medusa Polyorchis Penicillata A. Agassiz. By Frank W. Bancroft.

Bacteriology and the Public Health. By George Newman, M.D., F.R.S.E., D.P.H. Third Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

One Hundred Years of Publishing (1804–1904). A Brief Historical Account of the House of William Wood and Company. Illustrated. New York: William Wood & Co. 1904.

Some Statistics of Garbage Disposal for the Larger American Cities in 1902. C.-E. A. Winslow and P. Hansen. Reprint.

The Sanitary Dangers of Certain Occupations. By C.-E. A. Winslow, S.M. Reprint.

The Occurrence of the Colon Bacillus on the Hands. By C.-E. A. Winslow. Reprint.

Manual of Operating Surgery. By John Fairbairn Binnie, A.M., C.M. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

On Uniformity in Pelvic and Cranial Measurements. By A. F. A. King, M.D. Reprint.

The Climatic Treatment of Pulmonary Tuberculosis. By A. F. A. King, A.M., M.D., LL.D. Reprint.

New Etiology and Prophylaxis of Appendicitis. By A. F. A. King, M.D. Reprint.

Some Papers on Pneumonia. By Beverley Robinson, M.D. Reprint.

Blakiston's Quiz-Compends. A Compend of the Diseases of the Eye and Refraction, including Treatment and Surgery. By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D. Third Edition, Revised and Corrected. Illustrated. Philadelphia: P. Blakiston's & Co. 1904.

Transactions of the Twenty-sixth Annual Meeting of the American Laryngological Association held at Atlantic City, N. J., June 2d, 3d and 4th, 1904.

The Surgical Diseases of the Genito-Urinary Tract, Venereal and Sexual Diseases. A Text-book for Students and Practitioners. By G. Frank Lydston, M.D. Revised Edition. Illustrated. Philadelphia: F. A. Davis Company. 1904.

Text-book of Insanity. Based on Clinical Observations. For Practitioners and Students of Medicine. By Dr. R. von Krafft-Ebing. Authorized translation from the last German edition by Charles Gilbert Chaddock, M.D. With an introduction by Frederick Peterson, M.D. Philadelphia: F. A. Davis Company. 1905.

Original Articles.

CANCER IN AND ABOUT THE MOUTH.*

THE IMPORTANCE OF EARLY DIAGNOSIS OF CANCER IN AND ABOUT THE MOUTH.

BY FREDERIC C. COBB, M.D., BOSTON.

EARLY cancerous lesions of the mouth may be divided into two classes: first, those which, benign in themselves, are liable to result by degeneration in carcinoma, and second, those in which the clinical characteristics of carcinoma are already evident. Of the first class are leucoplakia, warts, ulceration, fissures and tubercles. In the second, besides the malignant characteristics above stated, we find induration at the base of the lesion with ulceration, sometimes accompanied by a foul discharge.

We cannot dismiss from our calculation the benign forms, since at any time they may manifest malignant characteristics. We cannot always treat a benign lesion as malignant because it may require an extensive operation, which the danger caused by its presence does not always justify. We must therefore decide in which cases we should operate on the benign growth at once, and in what others we must be content to watch for symptoms of degeneration.

The form of malignant lesion of the mouth which has the longest period of incubation, if one may use that expression, is leucoplakia, a disease manifested by white patches in the mucous membrane. These patches, which are smooth, white and glistening, resemble, and indeed microscopically are, scar tissue. They may occur on the tongue, on the inside of the lips, on the gums and perhaps on the palate. They frequently appear in the region where an irritation occurs, as, for instance, where a tooth rubs against the tongue, or the mouth-piece of a pipe touches the buccal membrane. Constitutionally, patches of leucoplakia are often due to syphilis, although not necessarily so. In smokers who are also syphilitics they seem to be most common. Patches of leucoplakia frequently degenerate into epithelioma after a variable time. We have had cases at the Massachusetts General Hospital in which a period of twenty years has elapsed between the appearance of the patches and their eventuation in carcinoma.

Leucoplakia may appear in single or multiple form and is not characterized by an indurated base or by ulceration. When carcinoma supervenes, an ulceration appears on the border of the patch of leucoplakia and microscopical examination shows the formation of carcinoma about the ulceration. I would not be understood to mean that ulceration close to such a patch is diagnostic of the presence of carcinoma, for benign ulcerations are also observed. Yet an ulceration near a patch of leucoplakia justifies, in my opinion, a microscopical examination, whether induration of the base be present or not.

To be classed among malignant lesions other than leucoplakia is also simple ulceration. This may occur on all portions of the mouth, tongue and soft palate. It is usually caused either by local irritation, as a bad tooth, or some irritation, such as a pipe, or by diseases, such as syphilis, tuberculosis or lupus. Practically lupus and tuberculosis can be diagnosed by the wide, shallow appearance of the ulcer with its undermined, irregular edges and its lack of induration. The general condition of the patient and failure to find elsewhere evidences of the disease are also points to be noted. Ulcerations from tuberculosis and lupus are far less frequent than those of syphilis or even those of traumatic origin. Practically, syphilis and trauma (the latter name including all forms of local irritation) form the main classes with which we have to deal.

In excluding syphilis we must remember that, as ulcers are caused by the tertiary form, we should look for all evidences of this stage of the disease. Tertiary ulcerations may occur at any point in the mouth or on the tongue, but especially upon the soft palate. They may be multiple and associated with other syphilitic lesions in the mouth or nose. By careful examination we can often find the scars of earlier lesions on tongue, palate or posterior wall. The nostrils should be minutely examined for past or present necrosis of the septum or turbinates. Perforation of the bony septum, even where it causes no external deformity whatever, is often found, and when present is almost absolute evidence of pre-existing syphilis. No practical, valuable rule can be given in the diagnosis of the ulcer itself except the stony feel of the induration. It is well known that the history is not of value in such cases. Treatment by syphilitic medication is of course a sure test but is time consuming, and the feeling at present is that no delay in the removal of the carcinoma is permissible. Nevertheless, when the diagnosis is doubtful and it can be made in no other way, the writer believes that anti-syphilitic treatment should be tried. Not longer than a week, using large doses of iodide, is necessary to establish a diagnosis, and a favorable improvement may sometimes be noticed in less time.

It may be remarked here, as a further aid to diagnosis between carcinomatous and syphilitic lesions, that the former are far more apt to be found in the middle third of the tongue than elsewhere; whereas the specific lesions have no special localization.

Traumatic ulcerations may, under careful examination, almost always be associated with their causes. A sharp tooth near the site of ulceration, in a position such that the tongue in its movements may rub against it, is the most common of these, and such ulcerations usually heal with rapidity as soon as the cause is removed.

Finally, given an ulceration the character of which inclines us strongly to the belief that it is carcinomatous, the question arises as to the mode of procedure. If there is no room for reasonable doubt, the patient should be at once operated

*The following papers on "The Results of the Treatment of Cancer in and about the Mouth," were read at a meeting of the Section for Surgery, Suffolk District Branch of The Massachusetts Medical Society, Feb. 1, 1906.

upon radically, a small wedge being removed at the time of operation and examined by a competent pathologist before proceeding further with the operation. If, on the other hand, any reasonable doubt exists as to the nature of the growth, the same procedure — namely, excision of a small wedge-shaped piece, — may be practiced under cocaine, taking care to cut wide of the lesion into healthy tissue, both to avoid any danger of starting metastases by the incision and also to afford the pathologist a comparison between the healthy and diseased tissue. The edges of the wound are brought together by suture and unite very quickly. No time should be lost in examination of the piece so removed, and if malignant radical operation should follow as soon as possible. Most important of all is it that the practitioner should follow up suspicious cases until no doubt remains in his mind in regard to the nature of the growth. Patients constantly present themselves to the clinics with advanced carcinoma, neither they nor their physicians having regarded the earlier symptoms as of importance.

THE RESULTS IN CASES OF CANCER OF THE TONSILS, TONGUE, AND JAWS, OPERATED ON AT THE MASSACHUSETTS GENERAL HOSPITAL DURING THE EIGHT YEARS FROM JANUARY 1, 1892, TO JANUARY 1, 1900.

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THIS series is comprised of ninety-two consecutive cases of cancer involving the mouth that were observed at the Massachusetts General Hospital during the eight years from Jan. 1, 1892, to Jan. 1, 1900. They have been divided for convenience into four classes: (1) Cancer of the tongue, or floor of the mouth involving the tongue. (2) Cancer of the tonsil, which includes two cases of cancer arising from the mucous membrane of the cheek, but involving the fauces at the time of observation. (3) Cancer of the upper jaw, including those arising from the antrum, alveolar process, or hard palate; and (4) cancer of the lower jaw, arising either from the mucous membrane over the alveolar process or more deeply placed, having a glandular origin, but soon involving the bone. Not all were operated upon; some being too far advanced at the time of consultation, while others refused operation on being told the probable result. In many, also, operation was undertaken only as a last resort in the hope of relieving symptoms. Eighty-three cases have been followed, while no information as to the result could be obtained in nine. Both operated and unoperated cases were followed to enable conclusions to be drawn in comparing the two classes.

The results obtained have been very interesting and have occasioned considerable surprise, completely upsetting the preconceived idea that cancer of the mouth was a hopeless disease, and that if the patient survived the operation he would surely die in a short time from recurrence.

The information sought from the cases was whether there were any cures, whether life was prolonged and made more bearable by operation, the relative value of the palliative and radical operation, and the operative mortality. The statistics seem to be fair, but there is a possibility of several of the cases not heard from being alive, as the patients represent the floating population, and are hard to locate when alive, but are easily found in the state records if dead.

The males were much more frequently affected than the females, as was to be expected, the actual numbers being 71 males and 21 females. Many of the histories, unfortunately, were too vague to allow any conclusions as to the predisposing cause to be drawn. Almost all used alcohol and tobacco and many dated the first symptom from trouble with the teeth, but as in this class of patient bad teeth are the rule, too much stress should not be laid on this point.

The average age was fifty-four and one third years. Taken by decades that from fifty to sixty years gave the largest number of cases, sixty to seventy years came next, with the decade from forty to fifty, third. The extremes in age were seventy-four years and twenty-one years, the latter being the youngest case found in a superficial examination of the literature. The operation consisted of everything from a simple curetting, or excision of the tumor, to a complete removal of the tongue, or jaw, with an elaborate dissection of the triangles of the neck. Six cases died soon after operation, giving an operative mortality of 10%. One of these cases, however, died of general purulent peritonitis, as proved by autopsy, which was in no way brought about by the operation. Excluding this case there was a mortality of 8½%, five cases, which, considering the age of the patients and the usual severity of the operation, does not seem excessive. One case died of shock, one of delirium tremens, and three of sepsis. It is interesting to note that there was not a single death from pneumonia, a complication so often feared and upon which so much stress is laid. There have been eight cases of cures following operation, all of which are alive and well to-day, the time from the date of operation varying from four to thirteen years. A ninth case, which should be regarded as a cure, lived four years after operation and then returned to the hospital with a sarcoma from which he died four months later. In all cases of cures there is a pathological report with microscopic examination made by Dr. W. F. Whitney. (These cases will be reported more in detail in their proper classes.)

Nearly all the cases where pathological examination was made, showed, on microscopic examination, squamous cell carcinoma, there being one case each of adeno-carcinoma, alveolar carcinoma, and carcinoma arising from an aberrant fragment of the thyroid gland at the foramen cecum of the tongue.

On the whole, life in the operated cases was

longer than in those where no operation was performed, thirty-three of the former living over one year from the first appearance of symptoms to nineteen of the latter. The figures of cases living over a year from the time of observation are more striking, being 23 against 5. Of course some were too far advanced at the time of admission and were refused as inoperable, but the greater number of unoperated cases refused operation when its severity and the small hope of ultimate cure were explained to them.

Regarded individually, the most interesting series of cases, and the only one large enough to justify conclusions, is, that of cancers of the tongue: Of these there were 54 cases, of which 34 were operated upon with an immediate mortality of 8½%.

In all of these cases where a pathological examination was made the diagnosis was squamous cell cancer, with the exception of one of malignant aberrant thyroid. There was only one case of leucoplakia which presented a small ulcerated nodule near the base of the tongue, thought probably malignant. The patient refused operation and died of cancer of the tongue eight years later. Although leucoplakia is often given as a predisposing cause, this is the only case of which the records make any mention. Two forms of cancer of the tongue are recognized, one where the growth starts from the epidermis and is first seen as a small ulcer, and the second where it starts from the mucous glands and is present at an early stage as a small hard nodule ulcerating later, but at one time having a distinct nodular phase. It was impossible, however, to differentiate these two variaties from the involved stories told by the patients. The average age was between fifty and sixty years, and the males more frequently affected, as naturally would be expected. The operations consisted of everything from the simple excision of a V-shaped piece of the tongue, including the growth, to the removal of the entire organ and dissection of the triangles of the neck. Strange at it may seem, there were more cures following comparatively simple operations than the more radical ones, but this is probably explained by the age of the patients. This point will be touched upon later in the paper. Owing to the large number of lymphatics in the tongue, infection of the lymph nodes undoubtedly occurs early, and it is said that recurrence is in the cervical lymph nodes rather than locally. In this series of cases, however, the reverse has been true, more recurring locally than in the glands.

Of the 34 operated cases, 4 are alive and well to-day; 2 thirteen years after operation, 1 six years after operation, and 1 four years after operation. A fifth case lived four and a half years and then died of sarcoma. Including this as a cure of the original carcinoma, the percentage of cures is 14.3%. That life was prolonged by operation is undoubted, as shown by the figures on the chart, being eleven months longer from the first symptoms and fourteen and seven tenths months from the time of observation. The cures all occurred in old cases, the patients being seventy, seventy-four, sixty-two and sixty-two respectively. The fifth case, on the other hand, was an exception to this, being extremely young, but twenty-one years old. The detailed history of these cases is as follows:

Case I: Dr. J. C. Warren. — Female, seventy years of age. Entered hospital Nov. 14, 1892. Two years before entrance a lump on the right side of the tongue was removed under cocaine by her physician. Some was left, however, which for eight months had been increasing rapidly in size. Examination showed the whole right side of the tongue, from the fauces to the tip, occupied by a large, hard, sloughing tumor which in places crossed the median line. No glands could be felt in the neck. The tongue was drawn out through the mouth with silk sutures passed through its body and the anterior three quarters amputated by a V-shaped incision. The wound was closed with silk. The patient made a good recovery and was discharged well. In January, 1901, she returned and a nodule the size of a walnut, which had appeared on the stump of the tongue, was removed by Dr. Warren by a simple operation. Microscopic examination of both specimens showed epidermoid cancer. The patient is still alive and well, thirteen years after the first operation, and shows no sign of recurrence. The patient is now eighty-three years old, she talks very indistinctly, but has apparently little difficulty in taking food.

Case II: Dr. J. C. Warren. — Male, seventy-four years of age. Entered hospital Dec. 14, 1892. One year before entrance, patient noticed a small lump under the tip of his tongue which slowly increased in size but caused no pain and but little inconvenience. Examination showed an indurated ulcerating tumor the size of a robin's egg under the tip of the tongue. No glands could be felt in the neck. At operation an incision was made under the symphysis and carried up through the floor of the mouth. The tongue was then drawn through the incision and its anterior half, including the tumor and the surrounding tissue, removed by a V-shaped incision. The wound in the mouth was closed with silk and the skin with silkworm gut. The patient made a good recovery and was discharged in a short time well. The patient was heard from in January, 1905, thirteen years after operation. He is in perfect health, but rather feeble. He is eighty-seven years old.

Case III: Dr. A. T. Cabot. — Male, sixty-two years of age. Entered hospital Feb. 25, 1899. Seven months previous patient had noticed a small lump on the left side of the tongue which had caused him no pain or inconvenience. On examination there was found a nodule on the left side of the tongue about one inch from the tip, which was about the size of a filbert, hard but not ulcerated. Several small, hard glands could be felt on the left side of the neck and under the angle of the jaw. At operation an incision was first made under the jaw and the lingual artery tied, the tongue was then drawn out through the mouth, split down the middle and the left half removed. The edges of the mucous membrane were approximated with catgut and the skin wound under the jaw closed with silkworm gut. No attempt was made to remove the glands. Microscopic examination of the specimen showed epidermoid cancer. The patient made a good recovery and was discharged well. In response to a letter he reported to the hospital on Jan. 20, 1905, almost six years after operation, in perfect health. He spoke distinctly and had no trouble in eating; there was no sign of recurrence.

Case IV: Dr. M. H. Richardson. — Male, sixty-two

years of age. Entered hospital January, 1897. One year before the patient had noticed a sore on the side of his tongue which diminished in size when he stopped smoking, but for two months previous to entrance to the hospital grew rapidly. Examination showed a hard, indurated growth occupying all the left side of the tongue from the fauces to the tip, foul and sloughing. There were many large lymph nodes in the left side of the neck. At operation an incision was made under the lower jaw on the left and carried into the mouth, after first tying the lingual artery. The tongue was then drawn out through the incision and amputated at a level with the circumvallate papillæ on the left and half an inch farther forward on the right. Thorough dissection of the glands in the neck was made and the skin wounds closed with silkworm gut; the mucous membrane of the mouth being approximated with catgut. The pathological examination of the specimen showed it to be epidermoid cancer. The patient was discharged well after a rapid recovery and was examined in 1901, four years later, by Dr. Richardson, at which time he was found to be in perfect health with no sign of recurrence.

CASE V: Dr. F. B. Harrington. — Male, twenty-one years of age. Entered hospital Sept. 15, 1893. Four weeks previous the patient had noticed a small lump under the tip of the tongue on the right side. On examination an ulcer the size of a ten-cent piece was found in that position over a small indurated area. At operation a triangular piece of tongue, including the growth, was removed through the mouth and the cut edges of the tongue approximated with silk sutures. Microscopic examination of the specimen showed typical epidermoid cancer. The patient remained perfectly well for four years, but returned to the hospital in October, 1897, with a lump the size of a walnut under the angle of the jaw on the right, involving the base of the tongue. At operation a complete excision of the tongue was done by Kocher's method. The microscopic examination of this specimen showed small, round-cell sarcoma. The patient made a good recovery and was discharged well but died four months later of recurrence.

Of cancers involving the tonsils there were eight cases, in only two of which was an attempt made to remove the whole growth. All these cases have been traced and are dead, but the number is so small that it does not seem justifiable to draw conclusions from them alone, although they are included in the table, embodying all the cases.

There were 15 cases of cancer of the upper jaw, on 11 of which operations were performed without mortality. Most of these cases arose either from the antrum or the alveolar process of the jaw, six each, only one originating on the hard palate. Fourteen of these cases have been followed and all but two are dead, the average length of life being in the operated cases 38.75 months. But two of the nine operated cases followed died within a year, one lived three years, two lived four and a half years and one is alive and well to-day. His history is as follows:

Dr. J. W. Elliott. — Male, sixty-six years of age. Entered hospital in June, 1897. For eight weeks previous to his entrance he had noticed some swelling of his left cheek associated with shooting pains. Examination showed a tumor of the left upper jaw presumably arising from the antrum, which caused considerable bulging downwards of the hard palate and extended upwards to the floor of the orbit, and was seen externally as a swelling of the cheek. At operation a complete excision of the upper jaw was done, the specimen on microscopic examination showing alveolar carcinoma. The patient made a good recovery and is alive and well to-day, eight years later. He is actively engaged in his trade, that of a blacksmith.

One other case of partial excision is alive and well to-day, six years after operation, that of a man with a fungating ulcer of the cheek involving the bone, this case probably started, however, as a rodent ulcer.

Of cancer of the lower jaw there were 15 cases during this period of seven years, on 12 of which operation was performed, which in nearly all was complete and radical. There were two deaths following operation, giving a mortality of 16⅔%.

All the cases were followed and all but two are dead, no other cases operated upon living over one year. One case, however, deemed too far advanced for operation, lived two and one-half years. The two cures were in the two most favorable cases. One was a fungating ulcer on the gum, which was removed with a large portion of the alveolar process, a comparatively minor operation. The growth on examination proved to be malignant papilloma. The patient is alive and well to-day, eight years after operation.

The other case was a woman forty-five years of age who presented an ulcerating tumor on the alveolar process the size of an almond. At operation the growth with a portion of the alveolar process was removed and on pathological examination proved to be a squamous cell carcinoma. The jaw was not resected and no attempt was made to remove the glands from the neck. The patient is alive and well to-day, six years after operation.

This series of cases shows that although in malignant disease around the mouth the prognosis is very grave, a certain percentage of patients are cured by operation. Age seems to be a very important factor, the malignancy of the disease diminishing as age increases, the two longest cures, thirteen years, occurring in old people, seventy and seventy-four years respectively, at the time of operation.

The relief of symptoms following operation could not be determined; but in many cases where it was possible to communicate with friends there was alleviation of symptoms, varying in length of time, in all but one case.

Cancer of the tonsil is the least favorable to operation. This is to be expected as its anatomical relation is such that it is practically impossible to remove it with a good margin of healthy tissue, if it is involved in a malignant growth.

Next to cancer of the tonsil that of the lower jaw seems to be the most malignant, returning soon after a radical operation and causing death within a year.

Life, in cancers of the upper jaw, seems to be prolonged more than in any other type of disease involving the mouth, although the hope of ultimate cure is no greater. If one called cases

living three years without a recurrence cured, there would be in this series five cases, or 50%; but three of these cases died after this length of time of recurrence, two even surviving four and a half years after operation, but eventually succumbing to the disease.

In cancer of the tongue, life certainly was considerably prolonged and there was a much larger percentage of cures than is generally supposed. These cures, however, bore no relation to the size of the growth or the extent of the operation. In but one of the cures was a radical operation done. In two the disease was apparently too far advanced to offer any chance of cure, half of the tongue being involved from the tip to the pillars of the fauces, but these people were of advanced age, a time when the malignancy of cancer is somewhat diminished. It must not be inferred from this, however, that the simple minor operation is advocated in this disease, and it is probable that had as extensive operation been done in all cases the percentage of cures would have been larger. The writers believe that all operations for cancer should be as radical as possible. Thus Butlin in 199 cases, where a radical operation was done, reports 20% of cures; and Laison, cited by Von Bergmann, 34%. This operation as done in Germany, however, is very extensive, the operative mortality varying up to 25%. Both the above observers fail to state whether their cases were selected or represented a consecutive series.

ALL CASES.

Number,				92
Followed,				83
Males,	71	Female,	21	
Average Age,				54½ yrs.
Age by decades:				
20–30	5	50–60		27
30–40	4	60–70		25
40–50	20	70–80		12

OPERATED CASES.

Total,	62
Followed,	57
Operative mortality (5 cases),	8.5%
Cures (9 cases),	16.3%
Duration life from first symptom,	29.3 mos.
Duration of life from operation,	23.7 mos.

UNOPERATED CASES.

Duration life from first symptom,	19.8 mos.
Duration life from observation,	9.3 mos.

CANCER OF THE TONGUE.

Number,				54
Followed,				46
Males,	45	Female,	9	
Average age,				53½ yrs.
Age by decades:				
20–30	4	50–60		14
30–40	3	60–70		13
40–50	12	70–80		9

OPERATED CASES.

Total,	34
Followed,	30
Operative mortality (3 cases),	8.8
Cures (5 cases),	16.7
Duration life from first symptom,	32 mos.
Duration life from operation,	26.8 mos.

UNOPERATED CASES.

Duration life from first symptom,	20.9 mos.
Duration life from observation,	12.1 mos.

SARCOMA.

In following up the foregoing cases the results of some of the sarcomas were also inquired into, and although the series of cases is not as complete, it seems worthy of mention for the sake of comparison. The results on the whole were somewhat better than in carcinoma, but on analyzing the cases it was found, as would naturally be expected, that the less malignant types, such as the giant cell, fibro- myxo- and osteo-sarcoma recovered, while the round- and spindle-cell variety almost invariably died.

Ten cases of epulis, giant-cell sarcoma, have been followed, all of which are alive and well, more than five years from the date of operation. Two cases returned after operation, but in both of these the growth only was removed, while in the others a portion of the alveolar process was taken out with it. The two recurrences were operated upon again and are now cured.

Of the five cases of sarcoma of the tonsil followed four were operated upon. Two of these, both of the small, round-cell type, lived five and six years from the time of operation before succumbing to the disease. The third, also a small, round-cell sarcoma, died of recurrence in two months. The fourth case, an extensive large round-cell sarcoma, in which the operation was only undertaken for the relief of symptoms, took arsenic internally and is alive and well to-day, thirteen years after operation.

Of the sarcomas of the upper jaw five operated cases were followed and two are alive, one a fibro-sarcoma, six years after operation. The other, a case of sarcoma hard to classify, but of an endothelial type, is alive five years after the first operation, but has had several recurrences, and in fact has one at the present writing.

Three of the seven cases of the lower jaw followed are alive, an osteo, a fibro-osteo, and a lymph-angio sarcoma. The other four cases were of a more malignant type and are dead.

THE RESULTS OF TREATMENT OF CANCER IN AND ABOUT THE MOUTH AT THE BOSTON CITY HOSPITAL.

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THE cases upon which this report is based are taken from the records of the Boston City Hospital during the nine years from Jan. 1, 1895, to Dec. 31, 1903, inclusive. In this period, records are found of 69 cases, an average of about 8 each year. Of the total of 69, we have been able through various means to secure fairly reliable information regarding 60, or nearly 87%.

It has seemed undesirable from the view point of simplicity to attempt to define too explicitly for classification purposes, the unusual and relatively infrequent sites of carcinoma in and about the mouth. We have, therefore, grouped

all the cases under four headings: namely, *tongue*, *inferior maxilla*, *superior maxilla*, and *tonsil and fauces*.

Carcinoma of the tongue we found to occur in 30 cases (43.47%); inferior maxilla in 22 (31.88%); superior maxilla in 9 (13.04%); and tonsil and fauces in 8 (11.59%).

On the age basis, we have, as would be expected, the majority occurring in the period from forty to seventy years: to be more exact, thirty to forty years, 7 cases; forty to fifty years, 17 cases; fifty to sixty years, 25 cases; sixty to seventy years, 15 cases; seventy to eighty years, 5 cases.

Sexually considered, 56 were males and 13 were females, slightly over four to one.

Of the total number of 60 which were traced, 17 were either considered inoperable or else refused operation, leaving 43 on whom operation was performed.

Taking the cases as a whole, a general average regarding duration of symptoms, before application was made for treatment, is shown to be about seven months. This fact must not be lost sight of when later we come to speak in detail of the results and the causes of failure, the patients in most cases not having been seen until the disease was well established.

Touching briefly on the pronounced symptom or symptoms associated with each of the four parts involved, we find that when the tongue or inferior maxilla was the site of the disease, local pain and dysphagia were most complained of; in the case of the superior maxilla, pain, dysphagia, excessive salivation, and what we choose to call the trismus of malignant disease, whereby, because of the involvement by extension of the muscles of mastication, or the invasion of the temporo-maxillary joint, movement of the jaws becomes markedly limited or wholly prevented; where the tonsils and fauces were involved, pain and dysphagia were again the prominent symptoms.

In general, it may be said that the cachexia and associated systemic effects of malignant disease were not in evidence in this type of case; so that one looking for the secondary anemia, loss of weight and strength, etc., as helping in an early differential diagnosis, would be deceived. It may be said in passing that in each one of these 60 cases, the clinical diagnosis was confirmed by the pathological report.

As to the duration of the symptoms in carcinoma located in each one of these four sites, antedating the time of the first observation: Tongue: average seven months; longest time, four years; shortest time, two weeks. Inferior maxilla; average, seven and one-half months; longest time, two years; shortest time, three weeks. Superior maxilla: average, six and one-half months; longest time, twenty-one months; shortest time, five weeks. Tonsil and fauces: average, seven months; longest time, eleven months; shortest time, four weeks.

A duration of seven months would be an average, therefore.

As to results: Of these 60 traced cases, 56 are dead and 4 living, the latter seven, five and one-half, five, and two years, respectively, after operation, the lesions in these cases occurring in tongue and inferior maxilla (each 2).

In the cases recorded as dead, the average duration of life, from the time of the patient's first seeking help up to the time of death, whether operated or not, was about nine months: the longest being seven years and the shortest twenty days. Adding to this the average duration of symptoms antedating the first surgical observation, we find sixteen months to be the average duration of life from the time of the first symptoms.

Of the 43 cases operated upon, of whom 39 are known to be dead, the average duration of life was nine and one-half months or three and one-half months longer than in the non-operated cases. It must not be forgotten that 4 of these 43 are still living, as previously stated.

The operative mortality (by this meaning the deaths resulting from the operation itself) was 4, these varying in time from ten hours to four days. In each case death resulted from either post-operative shock (3) or hemorrhage (1); in none of all the 43 operated cases did there develop an inhalation pneumonia.

Our statistics would seem to show that age had relatively little effect on the time prognosis in this class of case, although the activity of the malignant process was perhaps a little less in those more advanced in years. In all those cases terminating fatally, the ultimate cause of death was the malignant process itself, usually in the form of recurrence where operation had been performed, or as a result of extension of the original lesion where no operation had been deemed advisable.

As to the site of the carcinoma as influencing tenure of life, regardless of the question of operation (in all cases dating from first observation): In case of tongue, average duration was seven months; in inferior maxilla, average was also seven months; in superior maxilla, average six months; in tonsil and fauces, average six and one-half months.

It will be seen, therefore, that seven months constituted an average, and that carcinoma of the tongue or tonsil brought a fatal termination no sooner than the same process in the upper or lower jaw.

Making a comparison of the operated and non-operated cases, merely from the standpoint of length of life (and not of physical or mental betterment), according to the location of the disease, we have these data:

Of those operated for *cancer of the tongue*, 2 are living, seven and five years respectively after operation, which in each case was partial excision. *A priori*, one would say that both of these cases must have been seen within a relatively brief time from the first appearance of the disease, and yet this was true of only one of them which was operated *three weeks* after the onset of the first symptom. The other case, now living seven years after operation, had the disease *eight months*

before seeking relief. Of those dead, the longest period was two years and the shortest one day; average fourteen and one-half months. Of those not operated, the longest duration of life was fifteen months, and the shortest fifteen days; average seven months or one-half as long as the operated cases.

Inferior maxilla: Two living, five and one and one-half years respectively after operation which in each case was a resection of one half of the jaw (in these 2 cases, the duration of symptoms before applying for relief had been six and eighteen months respectively). Of those dead, the longest, period was *nineteen months* and the shortest two weeks, average *sixteen months*. Of those not operated upon, one lived eight months, the longest, and one, one month, the shortest; average four months or one fourth as long as the operated cases.

Superior maxilla: Average duration of life after operation was seven and one-half months, the longest thirteen months and the shortest four days. We have records of only one case not operated upon, and in this, death occurred in thirteen months.

Tonsil and fauces: Average length of life after operation was eight and one-half months, the longest thirteen months, the shortest two and one-half months. The only case not operated lived six months.

As to the influence of the kind of operation performed (complete or partial excision) in lengthening life or the reverse, these again will be considered according to location.

Tongue: Complete excision, 7; average life, seven months. Partial excision, 10; average life, twenty-three months.

A disproportion here in favor of partial excision, over 3 to 1: we would recall to mind the fact that in the cases where the tongue was involved, the average duration of symptoms was seven months. At this point it must be mentioned again that the only two cases in this class living were partial excisions of tongue, operated upon three weeks and eight months respectively after the lesion was first noticed.

Inferior maxilla: Complete excision, 6; average life, sixteen and one half months. Partial excision, 7; average life, seven months. Over 2 to 1 in favor of complete excision.

Superior maxilla: Complete excision, 5; average life twelve months. Partial excision, 3; average life, five months. Slightly over 2 to 1 for complete excision.

Tonsil and fauces: Complete resection, 2; average life, nine months. Partial excision, 3; average life, four months. Slightly over 2 to 1 for radical operation.

Out of this total of 43 operated cases only *two* stand out in contrast as cured, both of these, as will be remembered, being carcinoma of the tongue on whom partial excision was made.

Most unreliable are the statements of patients suffering from malignant disease in general, when attempts are made by means of impersonal circular letters to obtain facts regarding their condition, and their unreliability is especially marked in those affected with carcinoma of the buccal cavity where the tendency is to distort and exaggerate their post-operative sufferings as compared with the ante-operative state. Nevertheless, allowing for all this, it is a fair statement that a majority of those of whom we have been able to secure information, either through letter or personal interview, have been able to state voluntarily that the operation gave them at least temporary benefit, certainly enough to have justified the attendant discomfort and risk. Out of thirty more or less satisfactory responsive cases, an exact statement would be that two considered themselves cured, 20 temporarily benefited at least, 3 no better than before operation, and 5 worse.

Another fair inference from this list is that the comfort and comparative freedom from suffering of those patients operated upon was distinctly greater than in the case of the non-operated, even though, according to these statistics, the tenure of life was not much greater. This feeling was especially well illustrated in the case of at least five patients, who, understanding from the beginning the gravity and apparent hopelessness of their state, returned again and again to the hospital for what transient relief might be afforded. In passing, it may be said that one of these has already had 13 operations since the date of her first one and within a fortnight has expressed her intention of returning for even further treatment.

SUMMARY OF RESULTS.

Subsequent histories obtained in 60 cases: Number living, 4; number dead, 56; number operated, 43; number not operated, 17; average duration of symptoms up to time of first observation, generally and specifically considered, seven and one-half months; average duration of life post-dating first observation, whether operated or not, nine months; average duration of life from time of first symptom, sixteen months; average duration in those not operated, six months; average duration in those operated, nine and one-half months, operative mortality, 4.

In cancer of tongue, operated cases lived twice as long as non-operated cases.

In cancer of inferior maxilla, operated cases lived four times as long as non-operated.

In cancer of superior maxilla, and tonsil and fauces, there were not enough non-operated cases to justify comparison.

Effect of complete or partial excision as lengthening life: Tongue, partially excised cases lived over three times as long as those having complete excision.

Inferior maxilla: those having complete excision lived over twice as long as those palliated.

Superior maxilla: complete excision slightly more than doubled duration of post-operative life.

Tonsil and fauces: radical treatment resulted in a doubled length of life after operation.

Of 30 cases, 5 were made worse, 3 no better than before operation, 20 temporarily benefited, and 2 cured.

CONCLUSIONS.

(1) The mortality of cases suffering from carcinoma in and about the buccal cavity (based on the statistics presented in this report) is extremely high, at least 90%.

(2) All unoperated cases die sooner or later of the disease, barring intercurrent affections.

(3) The duration of life of operated cases as compared with those not operated is in favor of the former by an average of about three and one-half months.

(4) The comfort of the individual is distinctly added to (even if it be only temporary) by some sort of surgical intervention; such relief may be either mental or physical.

(5) An *early* diagnosis of malignant disease about the buccal cavity is of the greatest importance, and a moderately radical excision of parts offers the greatest hope of a radical cure, commensurate with the comfort of the patient and the immediate risk to life. We realize fully and appreciate the importance of a most radical excision of parts in and about the seat of malignant disease. We believe that, in general, such extremely radical measures offer the greatest hope of permanent cure. The surgical treatment of malignant disease situated in very many parts of the body should consist of most radical excision. On the other hand, malignant disease may be situated in and about certain parts where extreme radical excision is attended either with great immediate risk to life or may so interfere with the function of the parts that the subsequent suffering and discomfort of the patient, provided he survive the operation, does not warrant such radical treatment, in view of the great probability of recurrence. There are instances where the patient wishes extreme measures to be taken for the purpose of avoiding recurrence, and under such circumstances there is no objection to employing the most radical measures. We believe, however, that the risk and discomfort, together with the inability to offer much hope of non-recurrence, following the complete removal of the tongue, the inferior maxilla or more or less of the pharynx and larynx, should be weighed and carefully presented to the patient before such radical treatment is undertaken.

(6) Where there is extensive invasion of the parts, excision (if done at all) should be undertaken solely with the idea of palliation, without too serious interference with physiological function and without too great immediate risk.

THE USE OF THE X-RAY IN THE POST-OPERATIVE TREATMENT OF CANCER IN THE MOUTH.

BY E. A. CODMAN, M. D., BOSTON.

PERHAPS I might express all that I have to say to you in one sentence. I have never seen the x-ray do any objective good for cancer in the mouth. This statement should carry only as much weight with you as it is reinforced by the amount of my experience, which has been confined to about a dozen cases at the hospital and five in private practice. The cases at the hospital I have not treated personally and have not followed in detail or with especial care. There have been, however, in some of these cases, distinct evidences of subjective improvement. These patients appear to derive benefit from the treatment for a time and are certainly more hopeful than if nothing was being done.

One of my private cases is particularly instructive, because I was able to do my very best for him. This patient was referred to me by Dr. J. C. Warren on May 12, 1902, for prophylatic x-ray treatment. Dr. Warren had removed most of the tongue and dissected the neck in April. The case seemed unusually hopeful because the original ulcerations, two in uumber, were of limited extent, and the glands removed from the neck showed no evidences of disease. The wound united well by first intention and with the exception of a small sinus in the neck, the patient's general condition was excellent. I began the x-ray treatment on May 12, and continued it faithfully through the summer. The x-ray was given not only on the outside of the neck, but through a more or less elaborate arrangement of mouth guards and speculæ into the inside of the mouth as well. Every precaution was taken to use the x-ray thoroughly, and I felt satisfied that I was giving as large doses as could be given without great risk of ulceration. The exposures were strong enough to produce signs of irritation in the mouth, and the sides of the neck had the appearance of a severe degree of sunburn. The patient was an extremely bright, intelligent, cultivated, agreeable man, in the prime of life, and Dr. Warren and I both felt that if there was anything in the x-ray prophylactic treatment, we ought to do our best in this case. During the middle of the summer, in spite of my best efforts, recurrence gradually appeared in the floor of the mouth and in the neck, and, by the middle of September had advanced to such an extent that to continue to give the x-ray seemed a mere nuisance. After the treatment was abandoned, recurrence proceeded at a very rapid rate and the patient died during the following winter. The condition of his mouth and neck before his death was simply terrible. The local process seemed to advance much faster than his general strength diminished, so that at the time of his death the ulceration in the neck had nearly sloughed through the entire neck, and it seemed a miracle that his head was still on his body. Fortunately, he took morphine kindly and enormous doses were given him.

I mention these pitiable facts merely to illustrate what seemed to be the characteristic feature of this case. That it seemed as if the long use of the x-ray had in some way increased the disproportion between the local growth and the general resistance. It seemed as if the patient lived longer in consequence of the x-ray treatment than he might otherwise be expected to have lived, but such increase as there was in the length of his existence was a thing not to be desired. I think one may oftentimes learn more by a complete case such as this, than by partial observation of many similar cases; and, naturally, since having made the attempt to prolong life in such a favorable case as this one and having seen the recurrence appear during the course of my treat-

ment, I have little confidence in the use of the x-ray in cancer in the mouth.

To offset this, is the case reported by Dr. C. B. Porter to-night, who is now living and well several years after the operation. Shortly after the wound healed Dr. Porter referred this gentleman to me for prophylactic x-ray treatment because of the leukoplakia which still existed on the remaining portions of his tongue. I gave him x-ray for a time, but I cannot say that I believe that it did good, because it is impossible to deny that he would probably have remained well in the ordinary course of events. Ultimately, the leucoplakia disappeared. Besides these two cases I have seen three others. One a patient with recurrent cancer following excision of cancer of the cheek and jaw in which the recurrence was very rapid and in which the x-ray appeared to produce no alleviation whatever, either objective or subjective. This case was referred to me by Dr. A. T. Cabot. Another case was recently referred to me by Dr. R. F. O'Neil. The patient was evidently in a very critical condition and the x-rays were merely given as a placibo. Another case of cancer of the floor of the mouth was referred to me by Dr. Charles O. Thompson. The patient was an elderly man and had had no operation except for diagnosis. The disease was so far advanced that I considered it inoperable, and as the patient fully understood the character of the disease and the probable result, I told him frankly that I thought the x-ray would be merely a waste of time and money.

Notwithstanding these discouraging results, I should still be willing to say to an inoperable, hopeless patient that the x-ray is worth trying. I should feel that to some people even this little chance was welcome, and I certainly believe that while an effort to relieve them is still being made the effect is helpful to the patient.

We know that the x-ray does make superficial cutaneous cancers disappear in some cases, and we cannot deny that it may allay the progress of deep-seated cancer; therefore, we may honestly say that it *might* do good in certain cases. Hopeless as it is, I believe that it is the most hopeful treatment we have after operation has failed. Even the unfortunate gentleman that I first alluded to, believed for many months, that he was well. However, it annoyed me excessively, long after I knew that recurrence was well under way, to be congratulated by certain of his friends as having cured him.

Treatment by the x-ray of operable cancers in the mouth is in my opinion unjustifiable, unless the circumstances are extraordinary.

THERMOTHERAPY AS A PART OF PHYSICAL THERAPEUTICS.

BY OCTAVE ROZENRAAD, M.D., BERLIN,
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"Ubi stimulus, ibi affluxus."

THE European physician is to be congratulated in that during the last few years new resources have been given to him in the use of physical therapeutics, as they have been applied with greatest success in large sanatoria, such as almost every German city now enjoys. Hydrotherapy, gymnastics with Zander apparatus, open-air treatment, sun baths, electricity, vibrations, massage and thermotherapy form the prominent part.

Thermotherapy, one of the so-called *physikalishdiätetische Heilmethoden*, is the treatment by heat. Such may be derived from our natural resources. The sun and the heat of the earth are the best and the most effective. We know that with the rays of heat combined there are other rays or so-called "ions" which have a therapeutic influence, and the radioactivity, recently found in German springs, Baden-Baden, Carlsbad, etc., has to be reckoned with as a therapeutic agent as well. The enormous quantities of heat which the sun sends out, two millions of calories per minute, are practically not made use of at all.

Sun baths were used in ancient times. The Greeks, probably through their relations with the Phenicians gave a prominent position in their mythology to Helios. Herodotus seems to have been the first to acknowledge the therapeutic effect of the sun rays. He and Antillys recommended it in *fluor albus*, dropsy and nervous affections, especially hysteria. The Romans who had a *solarium*, a roof garden, where they took these baths, highly appreciated their value.

It is only however, in modern times that sun baths have been scientifically employed. Through the special analysis we know the difference between the chemical and heating rays.

Sun baths have been successfully used in Germany and these "*Luftbäder*" have been applied in nervous condition, such as neurasthenia, insomnia, etc. Special attention is given to them in the Sanatoria of the Black Forest.[1]

Sorgo, head physician of a sanatorium for consumptives in Austria has recently employed the sun rays in phthisis laryngis. The mucous membrane shows greater sensibility to the sun rays than the epidermis. He reports a case in the *Wiener klinische Wochenschrift*, 1904, successfully treated. He treated the mucous membrane of the larynx with double reflected sunlight.

The effect of the sun rays is bactericidal as well as thermodynamic. Roux of the Paris Institute Pasteur, reported this year at the Congress of Climatotherapeutics held at Nice, that the sun rays, especially those of the southern climate, destroy bacteria, tubercle as well as tetanus bacilli, within ten minutes. This is largely due to the formation of ozone, a strong disinfectant. Whether heat or cold is advisable in disease has always been a matter of discussion among scientists. To the layman it is certainly incomprehensible that the physician should order an ice-bag to be applied one day, and warm compresses the next. The fact is that the physiological effect remains the same, for it is the nerve fibers that communicate this irritation to the cerebrum.

[1] Zetermann van Cordt: Zeitschrift f. phys. Therapie, 1904.

At two millimeters below the surface no distinction in the tissues can be made.

Heat is applied to the body through cataplasms, fango, hot sand, hot water, thermophores or hot air. Hot air has the advantage over the other measures that the heat may be applied to a higher degree than by other means, and causes greater active hyperemia. Turkish baths were long since introduced into therapeutics in the treatment of different forms of disease, such as rheumatism, sciatica, etc. Attention ought, though, to be paid to the fact that they are not to be used at the whim of the patient, as baths of too long duration may cause a collapse.

A great number of hot air apparatus exist. They are generally based on the same principle. The limb is placed in a cylinder, made of double copper, the limb is prevented, through a board padded with asbestos, from coming into contact with the cylinder itself. A thermometer is placed inside. The heat is produced through numerous Bunsen burners or alcohol lamps placed under it. The free sweating prevents the limb from being burnt.

The absorption of heat by the body, according to Landois, depends upon the surrounding medium. Heat will be better felt the denser the medium; water is therefore a stronger medium than air. Water above a temperature of 50° Celsius becomes unbearable, whereas hot air at such a temperature is pleasant. The highest possible temperature without cauterization is 400° Celsius. Rautenberg,[2] investigating the effect of hot air on hypersecretion and hyperemia, has found that the hotter the air becomes, the more rapid the air-currents, the sooner the skin becomes dry and the greater the hyperemia, But there is a line, an optimum of temperature, above which less favorable results are obtained. The optimum for perspiration is 50° C., for active hyperemia it is 120° C. Now, according to Professor Bier, hyperemia is a defense of the organism against excessive heat. It should be pointed out that an exposure of the body to a very high temperature leads to nervous prostration.

According to Bier the advantage of a local hot bath over a general hot bath is that one part only of the body is subject to a medium of high temperature, where as, in general baths (hot water, hot-air or sand), the heat is applied to the entire surface of the body, and general hyperemia of the skin results, whereas with a local hot-air bath, local hyperemia of the affected part is obtained with its beneficial results.

Francois Franck was the first to make a scientific research on the matter of hyperemia. He held that irritation of the skin caused a contraction of the blood vessels and anemia of the organs through reflex action. Yet Klapp, Bier's assistand, has proved that hyperemia may result, and Goltz and Ewald [3] have proved by physiological experiments that the contraction of the blood vessels is independent of the nervous system.

Schreiber gives the limit above which no perspiration is possible as 90° Celsius; at 50° Celsius, slight perspiration; at 70°, optimum, the skin feels dry, a fact probably due to the exhaustion of the secretory glands.

The American physician seems to understand by hot-air baths a treatment for the whole body. The local application of heat advocated by Bier, designed to produce active and passive hyperemia, seems not to be appreciated.

C. E. Skinner, New Haven, Conn., recently read at the Fifty-fifth Annual Session of the American Medical Association, a paper of which I find the report in the *Journal of the American Medical Association*, Oct. 8, 1904, that "local dry hot air application is rarely of any use in the treatment of arthritis deformans, except for the relief of pain, and even for this purpose it fails more often than it succeeds, and sometimes marked aggravation is the result." This does not seem to me to be an exact statement. In Europe, especially in Germany, it is generally acknowledged that the local hot-air treatment is of greatest benefit to a patient suffering from chronic rheumatism, and especially from arthritis deformans.

Bier to whom we especially owe the local hot-air treatment says in his book, "Hyperæmie als Heilmittel," page 209:

"*Anerkannt dürften die Wirkungen der activen Hyperaemie durch heisse Luft sein, bei chronischen Rheumatismus und Arthritis deformans. . . . Bei längerer Anwendung sieht man die Sehwellungen der Gelenke zurückgehen, Krepitationen welche vorhanden waren, abuchmen krankhafte knotige Auschwellungen verschwinden.*" (The effect of active hyperemia through hot air with chronic rheumatism and arthritis deformans is acknowledged. After a long application we notice that the swelling of the joints subsides, crepitation diminishes, the nodular inflammatory swelling disappears.)

De facto, this treatment is in Germany no more under discussion. Its value is acknowledged and it is applied in hospitals and in sanatoria. Air heated to a temperature of 200° to 300° F. is made use of in chronic inflammatory affections of the joints, especially in monarticular rheumatism and tenosynovitis (achillodyny), etc. It is of no value in gout; on the contrary, through setting forth large amounts of uric acid from the joint affected it may precipitate an attack of universal gout.[4]

Bier's assistant made a special form of hot-air bath for affections of the pelvis, which covered the entire pelvis. Polano used the same principle in gynecology for parametritic inflammations. The patient's pelvis was entirely enclosed in the box and a current of hot air even up to a temperature of 150° Celsius was driven through. Kehrer has tried the same method for non-development of the sexual organs, hoping that through an afflux of blood the atrophy might be cured.

Hot air has recently been introduced in the treatment of decubitus by Schlesinger, Professor

[2] Zeit. f. phys. and diat. Ther., September, 1904.

[3] In a dog whose medulla was cut, the power of contracting the arteries of the skin was preserved.

[4] Hare: Therapeutics.

Goldscheider's assistant, at the Moabit hospital in Berlin.[5] He claims to have seen good results in the treatment of decubitus occurring in puerperal and typhoid fevers, endocarditis and septicemia. In decubitus trophicus, as was to be expected from its nature, healing did not result. The application was made at a distance of ten inches, and hot air at a temperature of 108° C. was directed against the affected part. The surrounding healthy tissue was covered with celluloid. After the application of hot air the tissue was well protected with a thick layer of dermatol. Dr. Schlesinger states that after a three weeks' treatment, he has seen *restitutio ad integrum* result.

Dr. Max Joseph[6] recommends hot-air treatment for ulcus specificum, which Eugen Hollænder of Berlin introduced. Dr. Hollænder was the first to make use of hot air in Lupus vulgaris. Two years ago he applied it in the first stage of a specific infection. He employed a temperature of 400° Celsius. This is then cauterization without contact (contactlose Cauterisation). The mode of application was the following: First, anemia was obtained through Esmarch's bandage, so that almost no blood was left in the arteries; an anesthetic was used, generally chlorethyl. Then a current of hot air was directed against the spot affected. Within a few minutes scarification took place, then the scarified tissue was removed with a curette. Anesthesia was renewed and once more the hot air current was used. The after treatment is the usual one employed with a burn.

According to the statistics presented to the *Berliner Medizinische Gesellshaft*, the number of patients treated was 130, of which 105 were cured. Hollaender advocates the method to the general practitioner as a very simple one which seems to be very effective and does no harm to the patient.

Every organ that works is in a state of hyperemia. Bier[7] makes the following distinction between active and passive hyperemia. Active hyperemia he calls the stronger afflux of arterial blood to the tissues; passive hyperemia when the reflux of venous blood is stopped.

Hyperemia sometimes gives most striking results. Walsh has noticed that an eczema of both hands which had resisted treatment was cured by hot air, the only hand being treated was the right one, and yet the left hand was cured as well. The same result is obtained in rheumatism; suppose both arms affected, if one arm is exposed to hot air treatment both arms may be cured. This paradox is to be taken *cum grano salis*. The explanation is offered that the body possesses a certain amount of antitoxin, so-called alexines, but not sufficient to cure both arms. When one part of the morbid tissue becomes cured, the whole amount of these alexines is thrown into the morbid tissue remaining Like a general who might overcome two armies one at a time, but who would find the task too great if he attacked both at the same time.

[5] Zeitschrift. f. physik. u. diät. Ther., 1904.
[6] Ärztliche Praxis, April, 1904.
[7] Hyperemie als Heilmittel, p. 15.

The fact has long since been known that a patient suffering from tuberculosis pulmonis et genu is very apt to recover from his phthisis pulmonis when the tubercular knee is eliminated through amputation.

A new treatment was introduced in 1897 through Bier, now professor of surgery at Bonn, then at Esmarch's clinic at Kiel. This treatment is called "*Stauungshyperaemia.*" It is hyperemia through stagnation of the blood. Bier had noticed that whenever a process of regeneration takes place in an affected tissue a strong afflux of blood occurs. He, therefore, artificially produced this hyperemia by temporarily constricting a limb. Bier's method has given satisfactory results in tuberculosis of the limbs and in gonorrheal arthritis. It is contra-indicated when a phlegmon exists for already there is too little circulation. This is passive hyperemia. Active hyperemia may be caused through hot water, sand baths, marsh fango, which comes from the moors of Battaglia near the Italian Lakes, or hot air.

It is to be understood that not the whole body is put into the heating medium, but that the application remains a local one — local hot air treatment. In an age in which a "lust of operation" exists, we wish to advocate conservative methods as long as possible.

When recently in Paris, I saw cases of metritis gonorrhea successfully treated through Apostoli's method of electric sondage[8] and cases of facial neuralgia, in which the extirpation of the ganglion Gasseri was recommended as the *ultimum refugium*, cured through a long application of the electric current, an hour daily for several months.[9] Whereas the extirpation is not only a serious operation, but is apt to give rise to keratitis and other troubles of the eye.

CONCLUSION.

The methods I have described, which form but a part of the *physicalische Heilmethoden* demand considerable time for their proper application. They are not, therefore, always available for the poorer classes. Great benefit would result if a special department were to be attached to each hospital for the treatment of the poor by physical means.

Otherwise if no operation can be recommended, the physician will find himself at a loss when the drugs have failed. As Oliver Wendell Holmes said, so long ago, in the "Autocrat of the Breakfast Table," "If the medicines were thrown into the sea it would be better for mankind, but worse for the fishes."

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[8] Zimmern, Hospital Broca.
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WEATHER CONDITIONS AT THE SHARON SANATORIUM.

BY WALTER A. GRIFFIN, M.D., SHARON,
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THESE observations were taken at the Sharon Sanatorium, an institution for the treatment of incipient pulmonary tuberculosis. It is situated about eighteen miles from Boston at an elevation of some 250 feet above the sea. This report is not intended to prove that the weather conditions at the Sanatorium are ideal, but they may be taken in connection with the results of treatment of tuberculosis at this institution, as shown in the annual reports and in various papers by Dr. Bowditch, to indicate how much may be accomplished in a climate not naturally favored, provided the patients are given the right sort of regimen.

A record of the amount of sunshine has been kept for three years. The data were collected for half that time by the nurses at the Sanatorium, and for the rest of the time by the author. The fact that there has been but little variation in the amount recorded in the whole time argues something for the method of making the data, by personal observation. There has been an average of 168 days each year when the sun shone all day, and 85 days when there was no sun. The other 112 days of the year had sun for one fourth of the time or longer, and these various fractions of sunny days have amounted on an average to the equivalent of 65 whole days of sunshine per year. These added to the 168 days already mentioned would make an average of 223 sunny days each year. Such a grouping seems fair since many of the days sunny only in part are really as pleasant as those on which the sun shines all the time. How the amount of sun was distributed each year is shown by the following table:

	Sun all day.	Total sum of sunny days.	Per cent of sunny days.	Days entirely without sun.
1902	163	224	61	86
1903	172	221	62	87
1904	170	224	61	83

The amount of sun does not vary in different months as much as might be expected. The average by months for the three years follows:

Month.	Total amount of sun.	Per cent.	Days entirely without sun.
Jan.	18	58	9
Feb.	18	64	8
March	17	55	13
April	18.5	62	7
May	22	71.4	4
June	18.5	62	7
July	20	64.5	4
Aug.	18.5	60.2	6
Sept.	20	66.6	4
Oct.	17.8	57.5	9
Nov.	18.5	62	7
Dec.	15.7	50.8	9

About a year and a half ago maximum and minimum thermometers and a rain gauge were set up. A sling psychrometer was also bought. This instrument consists of a wet and a dry bulb thermometer from the reading of which may be computed, with the aid of tables furnished by the government, the vapor pressure, relative humidity and temperature of the dew point. Records have been taken once a day, as near 8 A.M. as possible.

The average mean temperature in the year and a half has been 46.5 degrees. The highest record was in July, 1903, when 94 was reached. Only three times has the thermometer registered above 90°. The lowest temperature was 14° below zero.

The relative humidity has been high as one would expect from the nearness to the New England coast. It has been above 90° about six times each month. It rarely goes below 35%, and averages 73%. There has been but slight differences in different months. The absolute humidity has not been worked out.

The rainfall was 41.7 inches for 1904 and 16 inches for the last six months of 1903. It is to be noted that rarely is there less than 2 inches in a month. Because of the gravelly nature of the soil surface water is quickly taken up. How the temperature, humidity and precipitation have varied by months is shown by the following table:

Month. 1903.	Highest temp.	Lowest temp.	Average mean temp.	Av. relative humidity.	Precipitation.
July	94	49	70		2.52
Aug.	84	44	62	79	3.49
Sept.	87	35	62	78	1.27
Oct.	75	22	51	79	4.26
Nov.	70	5	37	76	1.32
Dec.	53	—8	25	71	3.25
1904					
Jan.	46	—14	12	78	4.60
Feb.	49	— 7	20	72	3
Mar.	68	0	32	66	3
April	72	12	43	68	8.62
May	85	32	58	65	2.66
June	92	35	61	73	1.97
July	88	43	72	79	2.51
Aug.	88	45	66	74	2.35
Sept.	85	27	60	77	6.22
Oct.	79	18	48	73	2.68
Nov.	58	8	32	74	1.39
Dec.	52	0	22	67	2.71

No record has been made of the direction or velocity of the wind, but in general all west winds are fair and east winds bring foul weather. Sudden changes are frequent, but the harshness of the east wind is not felt so keenly as in Boston because of the intervention of the Blue Hill of Milton. The Sanatorium is so well protected by woods that there is seldom any hardship to patients from winter winds.

A SUGGESTION FOR A PRACTICAL APPARATUS FOR USE IN INTRA-THORACIC OPERATIONS.*

BY FRED T. MURPHY, M.D., BOSTON.

SINCE the field of intra-thoracic surgery seems to offer so great opportunities for work, and since with a suitable apparatus all danger of collapse of the lungs can be eliminated, I present the

* I am much indebted to Drs. W. B. Cannon, F. E. Garland and B. Vincent for their assistance in this work.

following suggestion for a simple and practical apparatus for use in intra-thoracic operations.

Surgical operations within the thoracic cavity have been comparatively rare except for empyema, and this in a great measure is so because of the possibility of a dangerous collapse of the lungs when the pleural cavity is opened. That a single pleural cavity sometimes may be opened without causing alarming dyspnea is proven by numerous reports of cases, yet the danger from this complication is imminent.

Collapse of the non-adherent lung on opening a single pleural cavity has been prevented in various ways, *e. g.*, by allowing the pneumothorax to occur slowly, by the preliminary formation of adhesions between the visceral and parietal pleura, by stitching the lung to the chest wall and by seizing the lung when the pleural cavity is opened and holding it so that the mediastinal partition is kept in place and the opening in the chest wall kept closed. No one of these methods has proven entirely satisfactory for the free exploration of the pleural cavity.

If a double pneumothorax is created by breaking through the mediastinal partition, as would happen in extensive operations on the thoracic portion of the œsophagus, there must be a practically immediate and fatal collapse unless by some artificial means the lungs are inflated. Physiologists have long used artificial respiration in animal experiments by means of a tracheotomy tube and a rhythmically acting air pump. The Fell-O'Dwyer apparatus may tide over an emergency collapse of the lung, but no satisfactory working method was devised to insure normal respiration during intrathoracic operations on the human being until Sauerbruch published the description of his "negative or minus pressure" chamber.

The essential feature of his method is to maintain a minus pressure over the exposed lung equal to the normal interpleural pressure, that is, about 10 mm. of mercury. This was done by enclosing the body of the patient, leaving the head outside, within an air-tight chamber in in which the operator stands and in which by means of suction pumps the air is constantly renewed and kept at the required minus pressure. This original chamber has been modified so that the abdomen and lower extremities are not subjected to the minus pressure. Animal experiments and operations upon the human being have demonstrated the practicability of the above-described method.

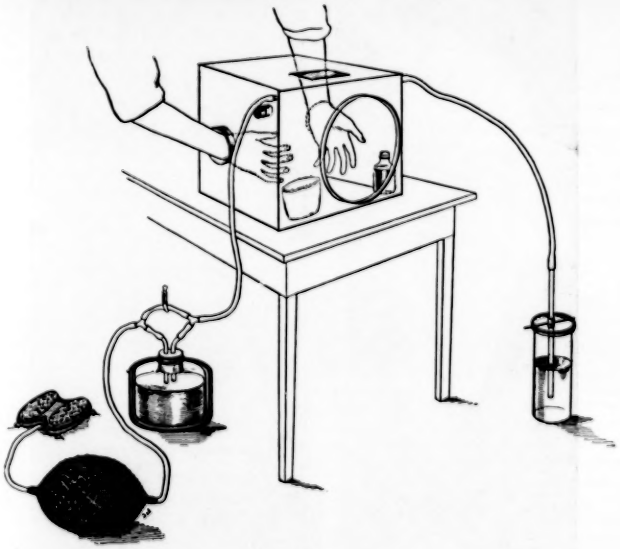

Fig. 1.

Brauer and Petersen reversed the method of Sauerbruch and employed a plus pressure within the lungs instead of a minus pressure without. They introduced air into the lungs from a reservoir under a constant pressure of about 10 mm. of mercury above the normal atmospheric pressure, either by means of a tracheal canula, or through a chamber which contained the patient's head and the anesthetist, or by means of a small complicated head apparatus which contained the patient's head and the hands of the anesthetist. Engelken and Wilms have suggested technical modifications in the application of this method. Animal experiments and operations

upon the human being have also demonstrated the practicability of this plus pressure method.

Certain questions as to the relative value of the plus or minus pressure have been raised, and in regard to the plus pressure it has been stated that acute circulatory disturbances follow its use and that there is an alarming loss of body temperature.

Without entering into a discussion here of the theoretical advantages of the one method over the other, I would say that I have employed the plus pressure method on a considerable number of animals — the results of which experiments will be published later — without meeting with any difficulty either with the circulation or the respiration, provided that the pressure was maintained at a level of from 8 to 10 cm. of water, that is about 7 mm. of mercury, and provided that the operating room was kept at somewhere near body temperature.

Fig. 1 shows a small cabinet for the head of the patient and the hands of the anesthetist, an apparatus by which the plus pressure is maintained and the ether given and a water manometer for regulating the pressure within the cabinet. The double valve foot pump for maintaining pressure, the rubber reservoir and the jacketed ether bottle are such as have been used in the Fillebrown apparatus for giving ether in operations about the mouth as described and perfected by Mosher and Green. The double jacket surrounding the ether bottle readily keeps the ether for forty-five minutes at about 110° F. if water of about that temperature is put into the inner cylinder and much hotter water into the outer. By the arrangement of the tubes in the ether bottle the in-going air from the foot pump through the rubber reservoir may be sent wholly or in part through the ether vapor or may be forced into the cabinet without containing any ether.

FIG. 2.

The chamber for the head consists of a simple sheet-zinc box, 12 inches high, 15 inches wide in front and 12 inches behind, and 10 inches deep. In the top is a glass window through which the face of the patient may be watched. At either side is an opening 3½ inches in diameter surrounded by a strong, lipped flange 1 inch wide. These openings at the sides have been placed 3½ inches from the top and 1½ inches from the back wall because

in this position and with the narrower back wall the anesthetist can without difficulty introduce his hands and have perfect control of the patient's head. At either side also is a tube ½ inch in diameter for the inlet and outlet of the air, On the right side is an opening 1½ inches in diameter which is ordinarily kept closed by a rubber cork. This cork may be removed in case the plus pressure within the chamber is not needed. In the front wall is an opening 9 inches in diameter through which the patient's head is introduced into the chamber. This also is surrounded by a heavy, lipped flange 1 inch wide. This opening is placed 1 inch from the bottom and 2 inches from the left side in order that there may be room to turn the head to the right in case of vomiting.

When the chamber contains the head of the patient and the hands of the anesthetist there is still ample room for an ether bottle and cone so that if there is any difficulty in administering sufficient ether by means of the foot pump or in case the rubber cork has been taken out it is possible to give the ether as if the cabinet were not in place.

Fig. 2 shows the apparatus in working order with rubber cuffs surrounding the neck of the patient and the arms of the etherizer. For the cuff about the neck "dentist's heavy weight" rubber sheeting is used. A circular hole is cut in the sheeting only large enough to admit the patient's head, after gentle stretching of the rubber. The cuff is made secure at the level of the thyroid cartilage by means of strips of adhesive plaster so applied that they come within the chamber when it is in operation. Neither the rubber sheeting nor the adhesive strips need to be tight enough to prevent in the least the superficial venous flow in the neck. This cuff should be arranged before the anesthetic is started. Then when the patient is fully etherized the head is placed within the chamber and by a few turns of long adhesive plaster strips the rubber sheeting is fixed around the lipped flange. The rubber cuffs for the arms may also be made with rubber sheeting, but a 5-inch "band rubber" tube is more easily handled. The cuffs are also fixed with adhesive strips. The material for the head and arm cuffs may be obtained from the Davidson Rubber Company's factory.

The water manometer consists of a glass tube over which is slipped a short piece of rubber tubing, and a vessel sufficiently deep to provide a depth of about 16 cm. of water. The rubber tubing over the glass tube is transfixed by a wire which is long enough to reach across the vessel which contains the water. By moving the rubber tubing up or down the depth to which the glass tube enters the water is varied and so the degree of pressure within the cabinet may be regulated. This pressure, I believe, should be only so much as is in each case necessary to allow a sufficient change of the air within the lungs and is not a fixed amount.

In using the chamber the eyes should be protected by moist compresses because the box is filled with ether vapor. The tongue should be held forward by a stitch so that it cannot be forced against the roof of the mouth by the plus pressure.

Thus far no opportunity has offered to test this apparatus on a human being in whom the pleural cavity was opened, but it has been demonstrated on a well man that with a closed thoracic cavity the pressure within the cabinet can be maintained without effort, with an ample supply of oxygen and without danger of injury to any part of the appliance. A similar apparatus of smaller size has made it possible on animals to open one or both pleural cavities without any apparent disturbance of respiration or circulation and the lungs did not collapse.

If the apparatus works equally well in operations upon human beings it possesses the advantage of cheapness, portability, ease of manipulation and simplicity.

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New Instrument.

A NEW URETHRAL IRRIGATOR.

BY F. J. COTTON, M.D., BOSTON,
Assistant Surgeon, Boston City Hospital; Surgeon to Genito-Urinary Department, Boston Dispensary.

THE more we come to appreciate the value of thorough irrigations in urethral treatment, the more important it becomes to have the best and handiest means of carrying them out. There is no lack of irrigating devices, some of them very handy. Practically all of them, properly handled, are efficient; most of them have obvious, if not important, defects. In venturing to present a new type of irrigator nozzle, I can only say that it avoids some of the defects present in the usual models, is handy, cleanly, readily sterilized, and cheap.

Irrigations to be of value must first of all be so managed as to give thorough washing. This means a large quantity of irrigating fluid, preferably so introduced as to cleanse the urethra progressively from the entrance backward, and so handled as to give a constant or intermittent distention of the canal, so that fluid is brought in contact with the whole surface. This has been carried out in various ways. Irrigation by catheter is an undesirable method, for whether done with a stiff, olive-pointed instrument with retrograde out-flow, or with a simple glass or soft rubber catheter, it entails in any case a trauma of the mucous membrane which may not be great, but is wholly undesirable. The method

of choice [1] is that of alternately filling the urethra to a fair stretch, and letting it empty itself entirely. For this purpose the irrigator tip should enter the meatus only far enough to close the orifice during the inward flow. This gives as good cleansing as the catheter method, if not better, and avoids mechanical irritation.

There are two types of irrigator tips for this meatus irrigation. The first consists essentially of a simple conical tip which is pushed into the meatus so as to fill the opening while the stream is being thrown into the urethra; the tip is then partly withdrawn while the injected fluid is emptied between it and the urethral walls. Usually the ejected fluid is received into some sort of a shield surrounding the nozzle.

a and *b* show the small and large nozzles (a little less than ½ actual size); *c* is a special blunt type of the larger size which proves more convenient in a few cases.

The Valentine irrigator, the Rees model and others belong to this class.

The other class is that of the familiar double-current nozzles in which the nozzle is fitted into the meatus and stays there, while the solution flows into the urethra by one tube and out by another.

As to the first class, they are a little cumbersome, and not all of them are readily cleaned or sterilized, and the distribution of the return flow of fluid is apt to be a little indiscriminate. The only serious objection, however, is that the alternate shoving in and pulling out of the nozzle is irritating, and, especially where the meatus is small, may be so irritating as to be a distinct drawback.

The double-current nozzles have none of these disadvantages. The one most used, however, the vulcanite Kiefer nozzle, has inlet and outflow tubes too small for convenience, and is so large at the end that it can be used effectively only where the meatus is large. Moreover, the hard rubber collects a film on the surface and cannot well be kept clean. There is a form of double-current nozzle made of glass (I never knew whose device it is) which obviates all these difficulties, except that it also is impracticable for a small meatus. The Wigmore model, which does fit a small meatus, is of metal, not very readily cleaned, and heats up unpleasantly during irrigation with hot solutions.

The model herewith presented was first worked out a year and a half ago as a substitute for the Kiefer in cases in which the meatus is small. It proved so convenient in this small size that I had the larger size made, and since then have had both sizes in constant use with entire satisfaction.

The illustration tells the story. The nozzle is of annealed glass tubing with an inlet tube above, entering close to the tip; the last ¾ inch carries the inflow and the outflow alternately. The outlet tube is in direct line with the urethra and of a size to permit instant emptying. The contraction of the outlet in the larger sized model is a later modification designed to prevent the too sudden emptying of the tube, and a consequent filling of the tube with air which may enter the urethra: this end is efficiently attained in this way. With the smaller size no such precaution is necessary. The tips are made in two sizes so that almost any meatus is readily fitted. The trick of hand necessary to compress the rubber inlet tube alternately with the closing of the outflow tube by the pressure of the gloved finger is exactly the same as with the Kiefer nozzle and is quickly learned if not already familiar. There is no shifting of the tip of the nozzle and consequently no irritation at the introitus. An important point is that the tubes, being made of smooth glass, do not readily collect a film of pus and chemical precipitates, and they can readily be cleaned and may be boiled without fear of cracking. Another advantage is that the cheapness of these nozzles makes it practicable that one be set aside for each patient, or the operator may keep a considerable stock, sterilized and constantly at hand for use. The nozzles have been made by the J. W. Staniford Company and may be obtained through Sampson and Soch.

[1] Save in some cases for posterior irrigation or for irrigation behind a wide stricture.

Reports of Societies.

SECTION FOR SURGERY OF THE SUFFOLK DISTRICT BRANCH OF THE MASSACHUSETTS MEDICAL SOCIETY.

A MEETING was held at the Medical Library on Feb. 1, 1905, at 8.15 P.M., DR. F. B. HARRINGTON in the chair.

The subject for the evening was:

THE RESULTS OF THE TREATMENT OF CANCER IN AND ABOUT THE MOUTH.

The discussion was limited strictly to epithelioma and carcinoma and did not include sarcoma, epulis or other new growths. Epithelioma of the lips and exter-

nal parts of the face were not included, even if there had been involvement of the jaws. Cancer of the mucous membrane of the cheek, the soft palate or tonsils were included.

The following papers were read:

1. THE IMPORTANCE OF EARLY DIAGNOSIS.
DR. FREDERIC C. COBB.

2. THE RESULTS OF CASES OPERATED ON AT THE MASSACHUSETTS GENERAL HOSPITAL FROM JAN. 1, 1895, TO JAN. 1, 1900, FIVE YEARS.
DR. FARRAR COBB AND DR. CHANNING SIMMONS.

3. THE RESULTS AT THE BOSTON CITY HOSPITAL.
DR. HOWARD A. LOTHROP AND DR. D. D. SCANNELL.

4. THE USE OF THE X-RAY IN POST-OPERATIVE TREATMENT.
DR. E. A. CODMAN.

DISCUSSION.

DR. J. C. WARREN: I wish to show a patient on whom I operated for cancer of the floor of the mouth three years ago. There has been no return of the disease. The patient was seventy years of age at the time of the operation Feb. 6, 1902. Five weeks before he had first noticed the presence of an ulcer underneath the tongue on the fold of membrane between it and the jaw, on the left side. It had been examined by Dr. E. R. Saunders of Kingston, Jamaica, who advised him to return home immediately and have an operation performed. The operation consisted of an incision externally along the line of the horizontal ramus. The soft parts were separated from the inside of the jaw bone by a blunt dissector and the mucous membrane involved together with the submaxillary gland and the lymphatic glands adherent to it were removed *en masse*. The patient made a good recovery, but there was a fistular opening which healed slowly. There has been no sign of a relapse and the patient is in excellent health. The following is the report by Dr. W. F. Whitney: "The tumor removed from the floor of the mouth of Mr. Murphy showed an infiltrating, slightly ulcerated new growth about 2 cm. in diameter and about 3 mm. deep. There was attached to the submaxillary gland, one or two small lymph-nodes, one also removed. Microscopic examination showed the growth to be composed of large masses of flat, epithelial cells in places in intricated whorls infiltrating the tissue which also has very abundant small round cells. Diagnosis, epidermoid cancer."

My method of operating on cancer of the tongue consists in making an incision from the outer angle of the mouth vertically downward to the lower border of the jaw and then horizontally backward along that border as far as the ascending ramus; the incision should then move upwards and backwards on the outer side of the jaw a sufficient distance to enable the operator to reflect back the flap thus formed easily. The soft parts having been separated from the jaw on the inside by a blunt dissector, the bone is divided at any point most convenient to the operator and the two fragments separated by retractors. The base of the tongue and the floor of the mouth together with the anterior cervical triangle are easily approached in this way and the diseased tissue, primary and secondary, can be removed *en masse*. If the patient is placed in a chair the bleeding is slight and no intubation of the larynx is necessary. An incision along the anterior border of the sterno-mastoid is necessary to remove the cervical glands and through this drainage can subsequently be made.

The poor success following operations for cancer of the tongue may be due in part to incomplete operations. Recent experience has shown that far more extensive operations than those usually employed are well borne and leave the patient in a condition compatible with a comfortable existence.

DR. C. B. PORTER: Mr. J. B. B. came to see me in September, 1902, sent by Dr. Calvin Pratt of Bridgewater.

His trouble commenced in January, 1902, nine months previous to my seeing him. He had the advice and treatment of a number of doctors, and last of Dr. Pratt, who told him he thought it was cancer. I kept him under observation about a month, thinking that the induration which was present might be due to the previous applications of caustics, and then advised operation. The ulcer was in the middle of the left floor of the mouth, size of a nickel, extending from near the jaw to the under surface of tongue and involving it slightly. There was a patch of leukoplakia on the inside of the gum farther back on the same side. There were no glands to be felt. I cut out the mass with a good margin of seemingly healthy tissue, including a portion of the tongue. He made a good recovery and returned home in ten days.

The growth which I removed was examined by Dr. A. H. Gould and the sections submitted to Dr. J. H. Wright, who writes: "Microscopical examination shows typical squamous cell carcinoma. No unusual features are apparent in the sections. The carcinomatous tissue extends into the muscular tissue of the tongue and reaches to a depth of about 5 mm. beneath the surface of the mucous membrane. The dimensions of the mass of carcinomatous tissue included in the sections are about 12mm. by 4 mm."

In the following May, 1903, I sent him to Dr. Codman for x-ray treatment, from whom he had ten treatments, and subsequently five more. He was kept under observation. In the following August, while I was in Europe, Dr. C. A. Porter operated on him again. A note from him says:

"I operated upon him in August, 1903, fifteen months ago, owing to the fact that distinct induration could be felt bimanually close to the ramus of the jaw at site of your operation. I told him that if this was nothing the operation would do no harm, and if it was a recurrence it was his only chance of getting well. I operated under the jaw, removing the submaxillary gland, the adjacent tissues, cutting the hypoglossal nerve, and extending the dissection up, after the removal of the nodule, to the scar of your first operation. There were 2 or 3 enlarged glands and a mass of connective tissue. Careful examination of the whole showed no evidence of cancer.

(This patient was exhibited at the meeting by Dr. Porter.)

DR. ALBERT H. TUTTLE, Cambridge: I wish to present two cases of cancer of the tongue without recurrence. Mr. K., aged fifty-five; operation, spring of 1899. Growth of raspberry size removed, which showed cancer epithelium embedded in a fine stroma. The growth was diffuse and broken down with incipient ulceration in the center. There was no glandular invasion. Case was shown.

CASE II. — Mrs. B., aged eighty-three years. Operation one year ago for growth on the edge of the tongue somewhat larger than the preceding. The growth was epithelial in origin, diffuse, and without lymphatic complications. At present the tongue is somewhat tender, but shows no evidence of recurrence.

DR. M. E. SMITH: I would like to say a few words on this very important subject from the standpoint of the dentist. This is a subject that comes very close to the practice of dentistry. If there is any benefit to

be derived from surgical interference it is the early operation that holds out the greatest amount of hope. In many cases the dentist should be able to make a diagnosis long before the patient is aware that there is any trouble and long before they consult a surgeon or physician. In looking over my private practice, I can recall several cases where a diagnosis was made long before the patient was aware that anything was wrong; they called to see about some other trouble. One case in particular, a lady, was going to have a lower plate made and her dentist assured her it would be all right. There was a little growth in the angle of the jaw where he would carve a little out of the plate and it would be all right. Her daughter, not being quite satisfied, thought she would like to have my advice before having the work done. I recommended an operation. Dr. Mixter operated at the Massachusetts General Hospital, removing the inferior maxilla from articulation to symphysis. She lived a year, three months and five days

Another case where there was suspected trouble in the nose or throat and a thorough examination had been made by specialists; results negative. A very small ulcer was discovered about half the size of my little finger nail deep down on the side of the tongue, just below the wisdom tooth. Two days later he was operated on by Drs. Richardson and Warren. He lived one year, six months and one day.

In sarcomas much more can be done by the dentist, for they can be seen much earlier and seemingly a more accurate diagnosis made. How often we see those little growths not larger than the size of a pin head! If at that time they are thoroughly removed there is little danger of recurrence and comparatively no loss of tissue; if they do recur there is still an opportunity of doing a more radical operation.

As for bad teeth being the cause of cancer, I cannot agree with that statement; often the mouth is in a very bad condition, still, I have seen cancer in well-kept mouths, and mouths where there were no teeth. There are many growths from bad teeth that are called cancer, in which case, if the bad teeth are removed the growths disappear. Cancers sometimes occur in close proximity to a bad tooth, but I think they have a separate origin. I have seen alveolar abscesses that were called cancer. Badly fitting plates sometimes cut into the soft tissue and cause a growth that looks very suspicious and some good men have been deceived. Another condition that is terribly deceptive is where a person has had one or two teeth out for a long time; later the rest of the teeth are removed and a full plate put in; the place where the teeth were removed early is much deeper and harder than the rest of the mouth; in a very short time as the jaws shrink away, the whole pressure of the plate comes on that one little spot and if left long enough may produce a very ugly sore and as there is generally but little pain in the immediate part it is overlooked. The pain is severe but is reflex and is referred to some other part of the head. Some of those cases are bad enough to send a patient to the insane hospital; with the reflex pain that is almost unbearable and a sore that the patient considers cancer they are in a bad condition.

Do not consider that the subject of cancer of the mouth is given its right place in our dental schools; there should be more importance placed upon that subject; I consider it a dental disease and it should be so taught in our schools; in fact, any growth in the mouth should be considered of sufficient importance to demand a microscopical examination; that is our routine practice especially if we are suspicious that it is sarcoma. The only trouble we have is that Dr. Whitney complains that we do not give him enough tissue to make a satisfactory examination; we tell him that he has it all and that is the best we can do, but by taking the growth right from the mouth and sending it immediately to the microscopist it is surprising how satisfactory the reports are.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

STATED MEETING HELD JAN. 31, FEB. 1 and 2, 1905.

(Continued from No. 14, p. 408.)

SECOND DAY.— (Continued.)

THE CORRECTION OF NASAL DEFORMITIES BY SUBCUTANEOUS OPERATION.

DR. JOHN O. ROE of Rochester said that these operations were within the ability of the average surgeon, though they required an accurate knowledge of plastic surgery, the plastic art, and a correct perception of proportion and symmetry. In fact the surgeon should be more or less of an artist or sculptor. He classified these deformities into those that affected the bony portion, leading to too great convexity or concavity, or lateral deflection; deformities of the cartilaginous portion which might be due to excessive or defective development of the tip; those affecting the wings, and other deformities resulting from injuries or from syphilitic process which did not belong to the other classes. The subcutaneous operation was equally applicable to all and gave most excellent results. He described the technic which, of course, differed somewhat according to the object to be attained. He reported one case where the columna of the nose was torn off by the kick of a horse. Instead of being replaced a new columna was formed by tissues taken from the upper lip. All the tissues beneath the skin were taken and brought through to the nose by means of a buttonhole. After several months the mucous membrane, by exposure to the air took on the character of skin and replaced the columna very satisfactorily. In order to hold the parts in place until union was secured he used a saddle made to fit the contour of the nose and held in place by adhesive plaster across the face. This was removed frequently and adjusted so as to conform to the contour of the nose.

THE MIDDLE TURBINATE IN DISEASES OF THE ACCESSORY SINUSES.

DR. JOHN A. STUCKY of Lexington, Ky., thought that owing to the investigations of recent years disease of the sinuses was more often recognized than formerly. Grippe, however, might be one of the causes of increase in this disease, and so-called grippe complications often had their origin in some pathological condition of the middle turbinate. Both English and American writers considered that the middle turbinate was an offshoot of the ethmoid, and differences in its size and shape were more often overlooked than those in the inferior turbinate. The early removal of conditions that interfered with free drainage often obviated the necessity of more extensive operative procedures at a later period. He objected to the use of escharotics and the galvanocautery on the middle turbinate. The scissors and the snare should be employed, together with careful asepsis.

INFERIOR TURBINATED BONE, ITS FUNCTIONS, DISEASES AND TREATMENT.

DR. WENDELL C. PHILLIPS of New York said that pathological conditions of the inferior turbinate brought about interference with respiration and drainage. It was especially subject to reflexes of various kinds and

was a fruitful cause of hay fever. Operations should only be undertaken when there were serious disturbances of function. He deprecated the use of escharotics. They were no longer considered justifiable except in very small lesions, owing to the fact that they caused serious reaction and gave rise to unfortunate symptoms. He considered the galvanocautery of doubtful efficiency and said that the only occasion for its use was in the submucous reduction of the size of the turbinate by means of needles introduced beneath the skin surface before the current was turned on. Electricity was no longer used in the nose. He advised the wire snare for the posterior portion and the scissors for the middle and anterior portions of the turbinate. He did not plug the nose after operation, but used a piece of absorbent cotton soaked in a 12% solution of acetotartarate of aluminum with the addition of adrenalin if there was danger of hemorrhage.

TREATMENT OF CHRONIC OTITIS MEDIA, WITH ILLUSTRATIVE CASES.

Dr. W. Sohier Bryant of New York said that it was not impossible to cure cases of chronic discharge from the middle ear by palliative measures. Cleanliness was of first importance; all irritative materials should be removed so that there would be no culture media for infective materials. He used 10% to 20% nitrate of silver for carious bone as it did not produce irritative action. If it was impossible to secure rapid healing of the perforations of the membrane he recommended dermatization of the exposed inner surface of the drum. Irritation might cause the discharge to become inveterate. The reader cited a number of cases showing that true chronic otitis media with discharge might be permanently cured. These cases, however, required patience and great care.

Dr. Wendell C. Phillips of New York spoke of the brilliant work of Dr. Roe in correcting nasal deformities, and said that he had seen in Dr. Roe's office the worst of the cases he reported, which seemed to be a hopeless one and in which he had accomplished a great deal. In this case the only one hopeful thing was that the patient was non-syphilitic. Nasal deformities due to the ravages of syphilis were the most difficult to influence by any surgical operation. He said that Dr. Roe made use of redundant tissue with which to build up the deformity, that is, he took tissue from some other part of the nose. With regard to Dr. Stucky's interesting remarks he said that he rarely undertook to remove the middle turbinated bone, or any portion of it, without following it up with thorough curettement. In regard to Dr. Bryant's paper and his statement about the hopefulness for cure in chronic middle ear disease by the employment of cleanliness and local measures, he said that in middle ear disease with necrosed bone, etc., the outlook was bad unless surgical measures be employed. Life insurance companies would refuse to accept applicants with chronic ear disease because of the danger of extension to the more vital structures. Patients with necrosis in the middle ear with the involvement of structures closely connected not only the venous system but even the brain itself; surgery really offered the only means of relief.

Dr. Sargent F. Snow of Syracuse did not believe that the galvanocautery and cauterizing agents had a place in treatment of the middle turbinated bodies; only the cutting instruments should be employed. Dr. Bryant's paper was both valuable and dangerous; valuable if the directions given be followed by men who were careful and persistent; dangerous if followed by men blind in their persistence. Cleansing methods as advocated in other hands than Dr. Bryant's might prove to be a great source of danger. The better drainage advocated acted as a safety-valve and was productive of the best of results. If good drainage be instituted, Nature would make a prompt recovery. In cases of large necrotic surfaces, with pent-up secretion, fever, and further extension of the disease, such local treatment becomes dangerous and only surgical methods should then be employed.

Dr. J. A. Stucky of Lexington, Ky., believed that the men who were the best able to correct these nasal deformities were born and not made and that Dr. Roe was among those who were born. With regard to Dr. Phillips' paper he said the pendulum seemed now to have swung to the other extreme, and history was now repeating itself, and fewer operations were now performed on the nose. A few years ago rhinologists made the nose as smooth as a gun barrel and now there was a plea for more conservatism in work upon the nasal cavities. In the South he said there were two portions of the nose that were much respected, *i. e.*, the septum and the inferior turbinated bone. The question now was not how much could one remove but how little; just enough to give free drainage and permit of free respiration. He believed that in many cases of headache due to intranasal pressure the trouble was not due to the inferior but to the middle turbinated bone. When there were shelf-like projections with pressure upon the floor of the nose he thought one was justified in removing part of the bone but not with the galvanocautery or with excharotics, but with the knife or saw. He did not like the scissors as he once did. He emphasized the fact that the inferior turbinated bone was a real bone and if too much of it be removed a crusty and unpleasant condition would result which would be very hard to get rid of. With regard to curetting the ethmoid cells if indications were present, curette them, but one should be sure that those indications were really present. Dr. Stucky believed that many of the so-called nasal diseases, the hypersensitive rhinitis, the neuroses, the tumefaction of the tissues, etc., were really due to systemic disturbances and were not truly pathological conditions within the nose. With regard to Dr. Bryant's paper, he said that he should be congratulated upon his success in those cases. Dr. Stucky had had better success with the simple candle-wick for drainage than with absorbent cotton.

Dr. W. Sohier Bryant of New York closed the discussion and said that many cases of trifacial neuralgia were due to faulty conditions of the middle turbinated bone and no relief could be had until attention was paid to it. The relation of the middle turbinate to the middle ear was very interesting; sometimes the removal of an abscess on the lower end of the turbinate would stop a tinnitus, would stop a discharge from the ear, and improve the hearing.

THE PUBLIC HEALTH LABORATORY.

Dr. Herbert D. Pease of Albany said that as problems of public hygiene could only be solved by the technical methods of bacteriological, chemical and biological examination, laboratories were a necessity. As these could not be established by any but large cities it was the duty of the State to provide those needed in other localities. Eleven states had already started such work. Public Health laboratories should receive such help as would enable them to do bacteriological diagnostic work in diphtheria, typhoid fever, and tuberculosis. They should also be equipped to make chemical examinations of water, water sewage and milk. They should also have charge of the preparation of antitoxins and vaccines and the Pasteur treatment of rabies and the diagnosis of this disease. Some

of the problems to be solved were the relation of diphtheria to the diphtheria-like bacilli, the relation of typhoid to the paratyphoid bacilli, the questions of the natural conditions surrounding the viability of pathogenic bacteria. Infectious and epidemic diseases should be studied by laboratory workers. The educational value of such work was great, and the work as worthy of state support as charitable, penal and corrective institutions. He wished to encourage conferences and schools for the instruction of sanitary officers.

THE VARIOUS METHODS FOR OPENING THE SKULL FOR THE REMOVAL OF TUMORS OF THE BRAIN.

DR. CHARLES H. FRAZIER of Philadelphia considered tumors of the temporal, frontal and occipital region and described the position, shape and size of the flaps used in removing such tumors. He considered the methods of hemostasis and the instruments employed in making osteoplastic flaps and establishing drainage. He reviewed the dangers attendant upon the exposure of cerebellar tumors. When the symptoms of cerebellar tumors resulting from intercranial pressure caused great discomfort and the tumors were inoperable he recommended that a section of bone be removed. He cited two cases of this nature who had suffered extremely and upon whom he had operated. Since operation they had been very much relieved though vision was not restored.

DR. B. FARQUHAR CURTIS of New York said the paper of Dr. Frazier was very important and a very instructive one and deserved much attention not only in its relation to brain tumors, but because of its relation to operations upon the interior of the skull and some cases of complicated fractures. His method of opening the skull was of general interest. With regard to Crile's instrument as being the best for the purpose he agreed, although he had not had an opportunity to use it except in an experimental way. He said he had been compelled to do resections of the skull with the wire saw, and he had found it practical although it was by no means as rapid in its work in cutting flaps as Dr. Crile's instrument. Three or four openings must be made and the delay came in having to introduce the wire saw from one opening to the other. The bone could generally be opened in from ten to fifteen minutes and the brain exposed. Dr. Curtis emphasized the necessity for having large flaps, an additional inch in room being of the greatest importance; the skin flap should be cut larger than the bone flap. Then when the whole flap was raised up the edges of the skin could be turned over and fastened by sutures. Oblique drainage should be employed, from without inwards and this was facilitated by making the skin flap larger than the bone flap. He believed that rubber dam or soft rubber glove was better than rubber tissue and less liable to break. He congratulated Dr. Frazier upon the brilliant results he had obtained.

DR. CHARLES H. FRAZIER of Philadelphia closed the discussion. He said he could not remember a case in which the tumor was exposed and but little time lost, with the blood pressure normal, in which he had hesitated to go ahead and remove it; the removal of the growth under such conditions did not seem to add to the gravity of the operation and did not necessitate doing the operation in two stages, unless the tumor was very large. He had long since come to the conclusion that, unless something unusual developed, the whole operation could be performed at one time.

(*To be continued.*)

Recent Literature.

The Heath Scholarship Prize Essay, on the Development and Anatomy of the Prostate Gland together with an account of Its Injuries and Diseases and Their Surgical Treatment. By W. G. RICHARDSON, M.B., B.S., F.R.C.S., Assistant Surgeon at the Royal Infirmary, Newcastle-on-Tyne, Assistant Demonstrator of Operative Surgery at the University of Durham College of Medicine. London: J. & A. Churchill. 1904.

The author of the above entitled work is to be congratulated upon having produced one of the most notable and admirable contributions to the literature of the subject of which it treats that exists. It is characterized by the completeness of the facts presented, by logical sequence of arrangement, conciseness and lucid expression.

The first fifty of the whole number of one hundred and twenty pages are devoted to the consideration of the anatomy and development of the prostate. The writer brings to the elucidation of this part of his study a careful and comprehensive examination of the comparative anatomy and the bearing which the latter has upon the same structures in the human being, and presents both aspects in a manner that leaves nothing to be desired. The conclusions to which the study leads the writer are concisely summarized at the end of each of the chapters. Among them are the following: " There is a portion of the gland which lies behind the urethra, below the outlet of the bladder and above the canal for the ejaculatory ducts; this portion discharges its secretion into the V-shaped area at the back of the urethra close to the outlet of the bladder; and it is continuous on each side with the lateral lobes. It is a distinct portion of the prostate and is called the ' middle lobe,' ' median portion,' or ' third lobe.' "

" The capsule is a firm envelope which is everywhere intimately connected to the stroma of the organ on its inner surface, and it is also connected, though not so intimately, on its outer surface with the fascial sheath of the prostate."

" In the fascial sheath the plexus of veins is embedded, and they are found mostly on the anterior surface and around the sides near the junction with the base of the bladder."

The embryological development of the gland and adjacent structures is given with equal thoroughness to that shown in the anatomical demonstrations.

The author next takes up the subject of chronic enlargement of the prostate. Under this heading the various theories with regard to the causation of this condition that are prevalent are discussed, and each in turn including the one which attributes the senile enlargement to gonorrheal inflammation is combated, the final conclusion being one with which we are in entire accord, namely, that there is but one underlying factor that is common to the great majority of cases, — age, — and that the etiological influence of all the other

elements that have been proposed as explanations of its origin are not substantiated.

Among other interesting points brought out in the course of this part of the subject is that of the occurrence of senile chronic enlargement of the prostate in dogs.

The writer next enters upon the clinical side of the question of the chronic enlargement of later life, in the course of the consideration of which he gives a most instructive demonstration of the forms and use of catheters. Comparing the treatment of the condition by catheter with that by radical operation — prostatectomy — he expresses himself thus:

"If the surgeon were to pass the instrument himself on every occasion when it was required, there could be little objection to recognizing catheters as a most valuable form of treatment; cystitis would be a rare complication, and the other secondary results of enlargement of the prostate would be greatly delayed, but even in such imaginary conditions the treatment would be in no sense a cure, . . . and the surgeon himself would in many cases be unable to give relief, and an operation, though long delayed, would become imperative." "It is not true that the operations are followed by such a high rate of mortality as that which follows catheterism. After operation death may be sooner, but it is not so sure at it is when the patient resorts to catheters."

This is a view which is shared by some other surgeons, and among them by ourselves. And again the writer speaks with no uncertainty, his conviction, which is one that we have also uttered for many years past that "No one who has seen the wholly satisfactory results of successful cases of prostatectomy can doubt that the radical operation will become the usual form of treatment . . . of such cases as arrive at the point when the choice lies between catheters and an operation."

In speaking of the operative steps the writer gives some most instructive details as to the manner of carrying out enucleation of the gland with the finger tip.

The technique of the perineal operation is less fully entered into than other parts of the subject. The Bottini operation is not discussed, but castration and vasectomy are considered, and, because of the unreliability of the results and inability to determine which cases are suitable for the application of these methods, are not approved despite the considerable number of successes which have followed their employment.

Acute and chronic prostatitis and prostatic abscesses are concisely presented and the essay concludes with a short reference to malignant disease of the gland and a table of thirty-six prostatectomies.

There is an entire and refreshing absence of all unnecessary minutiæ and not a trace of the advertising of wares which occasionally mar publications which otherwise have much merit. This author addresses himself exclusively to the problem as such, and is correspondingly satisfactory. The volume is handsomely illustrated with forty-six plates, which with but few exceptions are the work of the author himself.

Appleton's Medical Dictionary. An Illustrated Dictionary of Medicine and Allied Subjects, in which are given the derivation, accentuation, and definition of terms used throughout the entire field of medical science. Edited by FRANK P. FOSTER, M.D. New York and London: D. Appleton & Company. 1904.

This volume of nearly two thousand pages is hardly to be designated as a "handy volume," as it is called in the publishers' note. As a matter of fact, the book is one of the largest and most comprehensive medical dictionaries which has yet appeared, being considerably greater in bulk than the last edition of Dunglison. Like many medical dictionaries, and dictionaries of other sorts as well, the book is encyclopedic in the character of some of its articles. The volume is intended especially for the general practitioner of medicine, and it must therefore stand as a rival to many others which have already been designed for the same general purpose. In certain respects it goes beyond its competitors in completeness, and therefore in value. On the other hand its cumbersomeness will no doubt interfere in a measure with its success. Two volumes would certainly be more convenient than one of this size. We are particularly glad to note that the editor has not yielded to the recent tendency to use the termination "ic" for "ical" nor to drop the final e in many words ending in "ine" and "ide." The words in the text are printed in large type, which is to be commended, and derivations are liberally given, which is altogether desirable in so mixed a terminology as medicine represents. Illustrations are liberal; the printing is admirable, and in general the book presents a most attractive appearance. It is edited by Dr. Frank P. Foster, whose experience in this line of work certainly shows to advantage in this volume.

Practical Physiological Chemistry. By J. A. MILROY, M.A., M.D., Demonstrator of Physiology, Queen's College, Belfast, and T. H. MILROY, M.D., B.Sc., F.R.S.E., Professor of Physiology, Queen's College Belfast. New York: Longmans, Green & Co. 1904.

Insistence on the practical features of physiological chemistry is the noteworthy feature of this textbook. It is intended for beginners in the subject and is divided into a qualitative and a quantitative section. In the former are given the tests for the various foodstuffs, the characteristics of the digestive ferments and their activity, and the chemistry of bile, blood, milk and urine. The quantitative section presents clearly and concisely methods for accurate determination of the constituents of urine, blood, milk and gastric juice. The book is abundantly interleaved with blank pages, so that the student's notes may be near his text.

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THE CHEMICAL EXAMINATION OF THE URINE.

THE intelligent diagnostician, with the patient before him, has usually two means of arriving at a conclusion as to the most probable disease or disturbance present, *i. e.*, subjective symptoms and objective signs, and it is assumed that a good questioner and a careful observer will, in the majority of instances, locate the diseased organ or organs. The objective data are, of course, those obtained by what can be either seen, heard or felt. This is the rule. When, however, we are dealing with the urinary tract these means are inadequate and other methods must be employed to determine its condition; exception to this would be those pathological states of the tract that can be determined by the sense of touch or by instrumentation. The analysis of the urine is, therefore, a necessity, and, to use a figurative expression, urinary analysis may well be considered the "stethoscope" to the kidneys.

We feel perfectly safe in saying that every true and thorough diagnostician always examines the urine and gets from it all the information possible; if he neglects this, he has side-tracked a duty to his patient. He may claim to have adequate knowledge of the renal condition by gastric disturbance, history of polyuria, abnormal arterial tension and cardiac signs, edema, disturbances of vision, and other symptoms and signs; but a diagnosis of renal disease from such data is merely a guess. A *full* urinary picture, obtained only by a clinical examination of the urine, is essential to the diagnosis of disease of the kidneys. We stated that a *full* urinary picture was essential, that is to say, a knowledge of the twenty-four hour quantity of urine, the relation of the twelve-hour (day) quantity to the twelve-hour (night) quantity, the specific gravity, reaction, tests for albumin and sugar, the total twenty-four hour quantities of urea, chlorides, phosphates, and uric acid, and finally the microscopical examination of the sediment. With these facts before him, the physician has tangible evidence as to the condition of the kidneys and their capacity for doing the work expected of them. But this picture constitutes only a part of the complete picture of the case from which a diagnosis is to be deduced.

Urinary examinations, like other means of diagnosis, have their shortcomings, but this is no reason why we should abandon them. Frequently, too much is expected of the urinary expert or analyst. He is often requested to make an analysis of a urine and to draw his inferences as to the condition of the kidneys without any knowledge of the history of the case or the results of physical examination. The inferences must, of necessity, be drawn solely from the urinary findings. Under these circumstances, all that can be done is to point out pathological processes, any one of which may be present, and to state which condition the urine most closely resembles. Positive statements are not safe, and cannot be made without the clinical aspect of the case upon which the diagnosis may be wholly dependent. It should be remembered that urinary diagnosis has by no means reached the stage of an exact art, and that much remains to be learned, although decided advances have been made within the past fifty years. All of our readers will agree that it is a duty to get all possible data from the patient who is under treatment; the correct interpretation of such data naturally depends upon those concerned in making the diagnosis of the existing disease.

In a paper by Dr. R. C. Cabot, published in the *Journal of the American Medical Association* of March 18 and 25, he condemns the use of the common methods of urinary analysis, based on a critical study of the ante-mortem and post-mortem records of more than 200 cases at the Massachusetts General Hospital in Boston since the year 1893. He found that there were frequent discrepancies between the clinical diagnoses and the autopsy findings. In acute glomerular nephritis 75% of the clinical diagnoses were wrong; in subacute glomerular nephritis 50% were wrong; in chronic glomerular nephritis 11%; in chronic interstitial disease 32%; and in amyloid infiltration 100% of the clinical diagnoses failed to coin-

cide with the anatomical diagnoses. Briefly stated (not using the words of the author), his conclusions are: (1) In acute, subacute and chronic glomerular nephritis the common methods of urinary analysis are, in many instances, inadequate for an ante-mortem diagnosis of the condition, but to a less degree in the subacute and chronic forms than in the acute form. (2) In chronic interstitial the diagnostic resources are not as sufficient as in chronic glomerular nor as inadequate as in the acute cases. (3) Implicit reliance on the urinary findings frequently results in calling senile and arteriosclerotic degenerations of the kidneys a chronic nephritis, and acute and passive degenerations, an acute nephritis. Furthermore, that some urines are highly albuminous and full of casts when no lesion in the kidneys can be found at autopsy. (4) It is a waste of time to quantitate urea without an accurate knowledge of the patient's metabolism, and an attempt to estimate the anatomic condition of the kidneys by the measurement of albumin and the search for casts is fallacious in the extreme. (5) That the most reliable data about the urine are the twenty-four hour quantity, the specific gravity and the color.

These results are very surprising and open to marked criticism. Do they mean that the careful research in urinary diagnosis of fifty or more years is to be wholly undone? We cannot agree to this. There certainly is a screw loose somewhere.

We do not intend to make a critical review of Dr. Cabot's paper, but there are a few points to which we wish to call attention. The internes of our large hospitals are usually an intelligent class of men and the best that can be obtained, but they are medically inexperienced. Their urinary findings may be correct in every detail, but their interpretation of what they find — the inferences drawn — is where a serious difficulty arises. Their diagnoses frequently find their way to the records and thus they stand. We feel confident that if the attending physician could himself attend to every diagnostic detail connected with the hospital patient, the results would be different; furthermore, that a series of cases taken from the private practice of an experienced diagnostician would show a marked contrast to the results published by Dr. Cabot.

A very important point that must not be disregarded is the fact that a decided change in the kidneys and urine may take place just before death. This is especially seen in acute diseases, such as typhoid fever, pneumonia, acute endocarditis, acute alcoholism, and the like, where a slight and apparently insignificant renal congestion or acute degeneration which has existed early, just before death culminates in a true acute glomerular nephritis. This phenomenon is not the exception, but is of frequent occurrence. Changes in the urine are likely to occur in many of the chronic forms of nephritis just prior to death. For example, in chronic interstitial diseases the twenty-four hour quantity of urine near death is often much below the average normal — 1,500 cc. — while earlier in the disease the daily output is generally considerably in excess of this figure. From a careful study of the urine alone, it is, therefore, difficult or even impossible to conclude that a chronic interstitial nephritis exists without coupling the urinary findings with the clinical history and the physical examination.

We consider it a mistake to place *implicit* reliance on the results of urinary examinations for a diagnosis, since errors in diagnosis are bound to occur if the urinary findings are not considered a part only of the clinical picture of the case. Such findings should be corroborative rather than the pivot on which the final diagnosis rests, but their importance should in every instance receive consideration.

In conclusion, we await suggestions for a better way, if our present methods are all wrong and at variance with the pathological facts.

A MEDICAL EXAMINER FOR SUFFOLK COUNTY.

The office of one of the two medical examiners of Suffolk County (Boston) becomes vacant on July 1, 1905, by the resignation of Dr. F. W. Draper, who has held this position since it was created, twenty-eight years ago. The scandalous condition of affairs which existed under the old coroner system has been almost forgotten. The system of medical examiners is no longer an experiment, and it is to the credit of this Commonwealth that it was the first to adopt a method which has been copied by many states.

So much has been lost to this community by the resignation of Dr. Draper that one feels at first as if no one could take his place. No one can, at once. The proper person can grow up to it. Let us hope that a successor can be found, but let us make no hasty decision. Dr. Draper entered upon the office as a young man. A comparatively young man should succeed him, and this because the present rising generation of physicians is trained further and taught more

than an older one. A reflective mind, a courteous manner, a firmness of character, as well as integrity, were combined in Dr. Draper. The office needs skill and prudence, caution and decision, clearness of speech, as well as well-trained observation. A poor medical examiner can work endless mischief.

We do not recall any medical office which the Governor of the State is required to fill that carries with it a greater degree of personal responsibility than the medical examinership of Suffolk County. When the medical examiners in Massachusetts took the place of the coroners in 1877, the legislative enactment which established the change used these words: "The governor shall nominate and by and with the advice and consent of the council shall appoint able and discreet men, learned in the science of medicine, to be medical examiners." Ability, discretion and learning was the trinity of qualifications which theoretically governed the executive choice in the selection of these men in the several counties. With rare exceptions these characteristics have been exemplified, and the medical examiners are a representative body of medical men zealously eager to justify their appointment.

Let us see in what manner the medical examiner is required to show his ability, discretion and learning in the science of medicine. He must be able to observe diligently and exhaustively all circumstances that come before his view, always remembering and training himself to remember that the "first duty of a medical examiner is to cultivate a faculty of minute observation." He must know the technic of post-mortem examinations fully. The methods in legal medicine are, with slight variations, the same that are used in pathological anatomy, the difference being that in the legal examination the primary object is to determine if any other than natural causes have produced the death. In most cases this is easily determined; in others it is most difficult and demands the exercise of the highest technical skill. Frequently observations which may easily be overlooked are of importance. The medical examiner should have the quality of mind which enables him to determine and place in their relative proportions all the facts which can be determined, and he should be able to discriminate between definite knowledge and theory.

The most recent advances in physical chemistry have been found to be of importance in legal medicine. For example, the determination by cryoscopy of the difference between the molecular concentration of the blood in the right and left sides of the heart gives important information in supposed deaths from drowning. The biological tests for determining the source of blood stains have been found to be more accurate than the former microscopic methods. Zoology has contributed knowledge to determine the period of exposure of a body to the elements. All these methods require for their application technical skill and constant exercise.

Careless and slipshod work is not a part of an ideal examiner's creed. He knows quickly by experience that it is a great art of counsel who defend persons charged with crime to endeavor to expose what the medical witness has omitted to do, and although the omission may really be of no consequence, yet it may be placed before a jury in such a strong light that the accused obtains the benefit of the doubt.

The safety of a community, its good name, the exposure of crime, the detection of criminals, the protection of character and of property, and the happiness of families and of individuals not infrequently rest in the hands of the medical examiner. The decision of the district attorney as to the necessity of legal proceedings in doubtful or suspicious deaths rests practically upon the report of the medical examiner. When the medical examiner in any given case decides that death is due to natural causes, that ends the case.

A medical examiner must possess tact and sound judgment to adequately discharge his duty. For example, the law requires, with reference to cremation, that all bodies which are subjected to that process shall first be subject to the scrutiny of the medical examiner to eliminate the element of violence from the cause of death. This inquiry must be made under the shadow of a recent bereavement, and there can hardly be a more trying set of circumstances to test the medical examiner's sympathy and tact. The brusqueness of officialism must give way to gentleness, else the whole inquiry fails of its purpose.

All the ability, discretion and learning of a medical examiner may be defeated by his failure to impart the facts that he has acquired, either orally or in writing. To convey knowledge so that the common mind may understand is a gift that few possess. The medical examiner in the presentation of facts should be simple and direct, avoiding the technical, translating the scientific into the intelligible. It is perhaps more important that he should possess these qualities than great learning.

The public, and particularly the legal profession, has come to regard medical experts as men

who are partisans, and who frequently lack a nice sense of impartiality. This is due not merely to the personal character of medical experts, but to their being employed by either the defendant or the plaintiff in a suit, rather than being summoned and paid by the court. The medical examiner is fortunately in a position in which it is his duty, as a public servant, to be ruggedly honest whenever he goes upon the witness stand. To shade the testimony in favor of the individual who pays the fee for expert testimony is human. The medical examiner should be guided by truth alone wherever it may lead.

To summarize: A medical examiner should be a man of strict integrity; he should possess ability and skill in acquiring facts, discretion and tact in obtaining information, learning and good judgment that he may properly interpret the facts, and simplicity and directness that he may convey these facts to the proper authorities.

THE RESIGNATION OF DR. LANE FROM THE BOSTON INSANE HOSPITAL.

The resignation of Dr. Edward B. Lane, who for nearly twenty years has occupied the position of superintendent of the Boston Insane Hospital, comes as a severe blow to those who have the best interests of that institution at heart. The daily papers have announced that Dr. Lane resigned to enter private practice. This is only a partial statement of the case, and one apparently inspired by a desire to conceal the real ground for the resignation.

It is understood that Dr. Lane felt that his resignation was morally forced upon him by the action of the Board of Trustees. Up to the present time it has been the rule at this hospital, as at similar institutions, that the superintendent, who is held responsible for the proper administration of the institution, should select his assistants subject to the approval of the trustees. The trustees of the Boston Insane Hospital have seen fit to change this rule and no longer require the nomination of the superintendent in making such appointments. Acting under this new rule, they made an appointment which did not meet the approval of Dr. Lane.

It is unnecessary to speculate upon the motives which may have inspired this action. To the members of the medical profession who know Dr. Lane's ability, and the conscientiousness which he has brought to the performance of his duties, the knowledge that his judgment was at variance with that of the trustees is sufficient ground for deciding that the trustees made a mistake. Nor can we help feeling that a matter which is serious enough to demand a resignation was, in Dr. Lane's judgment, one that vitally concerned the proper administration of the institution and the welfare of the unfortunate patients. Under such circumstances Dr. Lane has taken the only step open to him as an honorable member of the profession with a high ideal of his duty to those intrusted to his care. It is deplorable that such a step should become necessary in an institution which has hitherto been so admirably managed and in which the citizens took a just pride.

MEDICAL NOTES.

An Antivivisection Story. — A prize was lately offered for an antivivisection story. If, says the *British Medical Journal*, we may judge from the accounts of it which we have seen, "Trixy," by Elizabeth Stuart Phelps Ward, an American writer of some note, would seem to be the kind of thing required. Here is the lady's description of the assistant director of a large surgical institute in which researches in physiology are carried out: "His face . . . was brutal. He had the eyes of an inquisitor, lowering and shifty. To an ordinary citizen his was a face to be dreaded. It was the type that was common in the sixteenth century. It was broad, flat, and surmounted by a rebellious fiery mane. But if his face would inspire dread, his hands gave the layman a nameless apprehension." A charming portrait; one wonders if it is from life. If it is, it is not unlikely that one of the antivivisectionist fraternity unconsciously sat for it, for faces of the inquisition type are, as far as our observation goes, more common among them than among their opponents. — *Medical News.*

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, April 12, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 23, typhoid fever 5, measles 14, tuberculosis 42, smallpox 0.

The death-rate of the reported deaths for the week ending April 12, 1905, was 21.99.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 8, 1905, was 232, against 223 the corresponding week of last year, showing an increase of 9 deaths, and making the death-rate for the week 19.80. Of

this number 127 were males and 105 were females; 225 were white and 7 colored; 150 were born in the United States, 76 in foreign countries, and 6 unknown; 52 were of American parentage, 138 of foreign parentage, and 42 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 19 cases and 5 deaths; scarlatina, 34 cases and 2 deaths; typhoid fever, 5 cases and 3 deaths; measles, 15 cases and 1 death; tuberculosis, 57 cases and 28 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 35, whooping cough, none, heart disease 29, bronchitis 6, and marasmus 5. There were 12 deaths from violent causes. The number of children who died under one year was 39; the number under five years 53. The number of persons who died over sixty years of age was 55. The deaths in public institutions were 76.

There were 13 cases and 7 deaths reported from cerebrospinal meningitis.

REGISTRATION IN DENTISTRY. — Of fifty-eight candidates who recently took the examination of the Massachusetts Board of Registration in Dentistry, but twenty-two succeeded in passing. This speaks well for the increased requirements for those entering the profession of dentistry.

NEW YORK.

SUPPORT OF PRIVATE HOSPITALS. — Mr. Parsons, the chairman of the committee of twelve recently appointed to suggest measures for the relief of the private hospitals of New York, was empowered at the first meeting of the committee, on April 3, to select from sub-committees, which will deal respectively with the following points: hospital support, co-operation, economics and accounting.

NEW LAND ACQUIRED BY MT. SINAI HOSPITAL. The Society of the Mount Sinai Hospital has bought a plot of land comprising eight city lots on the south side of 100th Street, directly opposite the new hospital buildings. The property, it is stated, has not been acquired with a view to adding immediately to the buildings, but the trustees thought it advisable to secure the lots and hold them in reserve against the future needs of the institution. A number of donations since the last annual report was published have made the purchase possible out of the general fund of the hospital.

EPIDEMIC CEREBROSPINAL MENINGITIS. — It will be seen that there has been a very marked increase in cerebrospinal fever, and the epidemic is considerably more severe than that of last year. Thus, in the month of March, 1904, the weekly average of deaths from the disease was only 18. The present epidemic probably reached its climax during the week ending April 1, when no less than 131 deaths were attributed to it. From January 1 to April 1, there was a total mortality of very nearly 600 from it. In the year 1904, there was a total of 1,211 deaths from it, as against 271 in 1903. There were somewhat fewer deaths in the first week of April than in the last week of March, and while it is as yet too early to arrive at any positive conclusion, i would seem likely that from this time on, with the advancing mildness of the season, the epidemic will gradually decline. Dr. H. M. Biggs, medical officer of the Health Department, states that the percentage of cases resulting fatally is about 40, or twice as large as the percentage in pneumonia.

CONVICTION OF A "HEALER." — The latest conviction for the illegal practice of medicine secured by the County Medical Society is that of a Mrs. Weaverson, a "healer," and one of the leading exponents in the city of what is described in the newspapers as the "Persian Mazdaznan Cult of Sun Worshipers." The chief evidence in the case was furnished by a woman detective employed by the society, and the defendant was fined $250, the maximum money penalty for the offense.

APPROPRIATION FOR MODERNIZING HOSPITALS FOR CONTAGIOUS DISEASES. — The Health Department has just received an appropriation of $1,000,000 from the city authorities which will be used in enlarging and modernizing its hospitals for contagious diseases. Among the new buildings will be a number of cottage pavilions for the care of patients suffering from two contagious diseases at the same time, such as scarlet fever and diphtheria. The execution of the plans of the department involves an expenditure amounting altogether to $7,000,000. About $1,500,000 will be used for rebuilding the isolation hospital on Kingston Avenue, Brooklyn, and two city blocks will be occupied by the various buildings. In the course of a few months three new buildings, costing $703,000, will be opened at the Willard Parker Hospital in East 16th Street, namely: a scarlet fever pavilion, with 300 beds, an administration building, and a bacteriological laboratory. Whenever the necessary funds can be secured from the city, pavilions for diphtheria and measles, similar to that for scarlet fever, will be built. On North Brother Island, it is intended soon to begin

the erection of a much needed dormitory for the hospital employees, an administration building, and a pavilion for tuberculosis. Two other pavilions will be constructed later, and the improvements contemplated at this hospital will cost about $300,000. One of the greatest needs is suitable accommodation for measles patients. The statistics of the Health Department show that during the past seven years there has been an epidemic of measles every alternate year.

Report of Committee on Adulteration. — The annual report of the committee on adulterations of the State Board of Pharmacy, of which Prof. George Dielman of the New York College of Pharmacy is chairman, was submitted to Governor Higgins on April 1. It shows that the adulterating, counterfeiting and dilution of drugs has been measurably restricted, the violations of the statutes during the year 1904 having been one-half less than in the preceding year. Twenty-one hundred and twenty-one samples were collected from pharmacists and other dealers, and upon analysis 151 of this number were found more or less deficient in strength, representing 7.12% of the total. In 117 samples, the presence of wood alcohol was shown. In cases of the most flagrant violations of the pharmacy law fines were imposed. Some of the druggists who were fined appealed to the Supreme Court, but lost their cases. They then carried the cases to the Appellate Division of that court, and this has now sustained the lower court, deciding that the fines were properly imposed. Professor Dielman states that the State Board of Pharmacy was materially aided in its work by the druggists' associations, as well as by many druggists individually, and he expresses his opinion that the condition of pharmacy in New York is to-day better than it has ever been before.

Miscellany.

PLAGUE IN INDIA.

The *Lancet* comments as follows on the plague situation: "The serious news which our Indian correspondent sends regarding the mortality from plague in that country indicates that no progress has been made in the control of the disease. On the contrary, the situation in India is becoming worse year by year and not only threatens to be, but is already, one of the greatest catastrophes of modern times. In January of this year over 100,000 deaths were recorded from plague in India. In February there were another 100,000, and 34,000 and 35,000 deaths are the numbers which have been reported during the past two weeks. Thus a greater disaster has occurred to our Indian population since the commencement of 1905 than has happened to the Russian army in Manchuria. Have those responsible for the welfare of our Indian empire fully realized the gravity of the situation either from its humane or political aspects? As regards the humane side, it is obvious that active measures proportionate to the greatness of the issues at stake require to be taken. Are these being organized and carried out? We doubt if the reply that can be given is satisfactory. It is true that an inquiry is to be undertaken by the Lister Institute of Preventive Medicine, the governing body of which has been in communication with the India Office and that the Institute, in conjunction with the Royal Society, has nominated a small advisory committee to be intrusted with the duty of drawing up a plan of campaign. This is good so far as it goes, but surely the urgency of the situation has not been recognized. The proposal of the Lister Institute was made last September, the work has not yet commenced, and it is possible that nothing much will be done till next September. In the meantime the appalling death-rate continues. The Advisory Committee includes Dr. C. J. Martin, F.R.S., director of the Lister Institute, and Col. D. Bruce, R.A.M.C., F.R.S., and is to be reinforced by a nominee of the India Office, two workers in India, and two assistant bacteriologists, and there is certainly room upon such a committee for one or two more persons possessing first-hand knowledge of the practical problems involved in the checking of an epidemic. Dr. Martin, Colonel Bruce and Capt. G. Lamb, I.M.S., who will coöperate with the committee in India, are obviously competent to do their share in grappling with the situation, and so is the gentleman whose name has been mentioned as the representative of the India Office, but if scientific inquiry on the spot is to be delegated, as was once we think the design of the Lister Institute, to two assistant bacteriologists, then the confidence of the medical profession in the work of the Advisory Committee will require some support. The method in which this matter is being handled must occasion concern to those who are anxious that the inquiry should be started in a proper manner and should achieve practical results. The epidemic of plague in India is more than a passing incident calling for some palliative measure. It is a catastrophe which, if not dealt with by broad and adequate measures having for their main object the prevention of the disease, will create a state of affairs in the Empire which may become a serious political danger. No government can afford to have its subjects dying from one disease, presumably a preventable disease, at the rate which is occurring in India, for ultimately such destruction produces its moral effects. When the rulers appear to hold the subjects' lives cheaply a loosening of the bonds may occur between the governed and those who govern. This has occurred in the times of pestilence before now and it may occur again."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 1, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Cerebro-spinal Meningitis.
New York	3,908,644	1,633	544	27.30	18.18	1.90	.37	7.96
Chicago	1,990,750	577	188	25.13	18.37	1.04	.35	.18
Philadelphia	1,407,998	545	140	34.77	17.64	.55	.55	.73
St. Louis	633,006	—	—	—	—	—	—	—
Baltimore	549,229	196	51	19.89	11.73	1.02	—	1.02
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	335,377	—	—	—	—	—	—	—
Milwaukee	335,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	80	20	17.50	26.25	—	1.25	—
Boston	617,950	246	65	16.67	19.51	1.22	.40	3.60
Worcester	136,925	53	11	11.32	9.43	—	—	3.77
Fall River	119,349	49	18	22.44	16.32	—	—	2.04
Lowell	104,402	31	14	35.48	9.68	3.22	—	12 90
Cambridge	100,998	25	10	12.00	28.00	—	—	—
Lynn	73,875	29	9	13.79	17.24	—	—	6.90
Lawrence	72,848	30	10	23.33	13.33	—	—	13.33
Springfield	73,090	27	4	18.51	7.40	3.70	—	3.70
Somerville	70,413	22	3	22.72	13.63	—	4.54	13.63
New Bedford	68,863	27	8	7.40	11.10	—	—	—
Holyoke	50,588	19	6	16.67	50.00	—	—	—
Brockton	46,601	11	3	9.09	—	—	—	—
Newton	39,310	16	3	6.25	6.25	—	—	—
Haverhill	39,061	13	3	7.70	15.40	—	—	—
Malden	37,305	9	1	11.11	11.11	—	—	—
Salem	37,188	16	3	12.50	12.50	—	—	—
Chelsea	36,499	19	4	5.33	16.67	—	—	—
Fitchburg	36,235	9	1	11.11	44.44	—	—	—
Taunton	34,577	7	—	—	57.20	—	—	—
Everett	30,309	10	4	10.00	—	—	—	—
North Adams	29,201	3	2	33.33	—	33.33	—	—
Quincy	26,798	7	3	57.20	14.30	14.30	—	28.60
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,795	9	—	—	33.33	—	—	—
Brookline	23,576	6	2	—	33.33	—	—	—
Pittsfield	22,870	3	1	—	—	—	—	—
Medford	21,958	5	2	20.00	20.00	—	—	—
Chicopee	21,692	7	3	—	14.30	—	—	—
Northampton	20,314	—	—	—	—	—	—	—
Beverly	15,807	7	1	14.30	28.60	14.30	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	3	0	33.33	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	2	0	—	—	—	—	—
Newburyport	14,478	6	2	16.67	16.67	—	—	—
Woburn	14,315	—	—	—	—	—	—	—
Melrose	13,819	5	0	20.00	40.00	—	—	—
Westfield	13,800	5	1	—	40.00	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	9	1	44.44	—	11.11	—	—
Revere	13,609	1	—	—	—	—	—	—
Framingham	13,974	11	1	—	18.18	—	—	—
Peabody	13,408	—	—	—	—	—	—	—
Gardner	12,334	0	—	—	—	—	—	—
Southbridge	11,716	2	2	50.00	50.00	—	—	—
Watertown	11,575	5	1	20.00	—	—	—	20.00
Weymouth	11,350	1	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,790; under five years of age, 1,145; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 914; acute lung diseases 672, consumption 392, scarlet fever 27, whooping cough 27, cerebrospinal meningitis 168, smallpox 1, erysipelas 15, puerperal fever 12, measles 35, typhoid fever 50, diarrheal diseases 124, diphtheria and croup 50.

From whooping cough, New York 12, Chicago 12, Philadelphia 1, Lowell 2. From scarlet fever, New York 20, Chicago 1, Philadelphia 2, Providence 1, Boston 3. From cerebrospinal meningitis, New York 131, Chicago 1, Philadelphia 4, Baltimore 2, Boston 9, Worcester 2, Lowell 4, Lynn 2, Lawrence 5, Somerville 3, Quincy 2, Fall River, Springfield and Watertown 1 each. From smallpox, Chicago 1. From erysipelas, New York 6, Chicago 2, Philadelphia 3, Providence 1, Boston, Somerville and Marlborough, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending March 25, 1905, the death-rate was 15.9. Deaths reported 4,752; acute diseases of the respiratory organs (London) 156, whooping cough 97, diphtheria 70, measles 210, smallpox 3, scarlet fever 54.

The death-rate ranged from 7.5 in Smethwick and Wallasey to 28.9 in Merthyr Tydfil; London 15.3, West Ham 15.6, Brighton 10.7, Southampton 22.7, Plymouth 23.8, Bristol 14.4, Birmingham 14.4, Leicester 11.7, Nottingham 23.0, Birkenhead 13.0, Liverpool 18.2, Wigan 16.9, Bolton 16.4, Manchester 17.7, Salford 14.9, Halifax 15.9, Bradford 15.3, Leeds 15.1, Hull 18.2, Sheffield 18.1, Newcastle-on-Tyne 18.9, Cardiff 10.4, Rhondda 14.6, Bournemouth 11.0, Portsmouth 27.6.

METEOROLOGICAL RECORD.

For the week ending April 1, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	Weather. 8.00 A.M.	Weather. 8.00 P.M.	Rainfall in inches.
S.. 26	29.93	50	60	41	36	64	50	N W	S W	10	9	O.	C.	0
M.. 27	29.79	50	57	44	44	64	54	S W	W	8	14	O.	C.	T.
T.. 28	30.04	53	64	43	32	28	30	W	N W	15	4	C.	O.	T.
W.. 29	30.16	50	57	43	35	76	56	E	E	7	2	C.	C.	0
T.. 30	30.10	54	69	40	38	82	60	E	S W	3	12	C.	F.	.06
F.. 31	30.13	56	66	45	32	49	40	W	W	10	12	C.	C.	0
S.. 1	30.16	43	49	36	45	38	42	N W	N W	18	14	C.	C.	0
Mean.	30.04		60	42			47							.06

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. †Indicates trace of rainfall. Means for week.

SOCIETY NOTICES.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.—The Eighth Annual Meeting of the American Gastro-Enterological Association will be held at the Academy of Medicine, 19 West 43d St. New York, Monday and Tuesday, April 24 and 25, 1905.

CHARLES D. AARON, M.D., Detroit, *Secretary.*

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The New England Hospital Medical Society will hold its next meeting at Hotel Nottingham, Huntington Ave., Boston, on Thursday, April 20, 1905, 7.30 P.M. A lecture on the X-ray with especial reference to Orthopedics, by Dr. Percy Brown, of Boston. Discussion, Drs. Alice Gray, Edith Meek, Hannah Myrick, Eliza Dadmun.

BLANCHE A. DENIG, *Secretary.*

AMERICAN PROCTOLOGIC SOCIETY.—The seventh annual meeting of this society will be held at Pittsburg, Pa., May 5 and 6, 1905; place of meeting, Hotel Henry. The profession is cordially invited to attend all meetings.

A. B. COOKE, M.D., *Secretary.*

RECENT DEATH.

DR. JARVIS K. MASON, of Suffield, Conn., died April, 8, at the age of seventy-three. He was born in Enfield, Conn., and was graduated from Yale College in 1855. He taught for some years after his graduation, and then turned his attention to medicine, receiving his degree at the Harvard Medical School in 1861. From that time until his death he has practised at Suffield, where he has held positions of trust and responsibility, among them being medical examiner from the creation of the office in 1883 until his death, health officer of the town for ten years, and town physician for several years. He held membership also in various societies, in two of which he had served as president.

BOOKS AND PAMPHLETS RECEIVED.

The After-Treatment of Operations. A Manual for Practitioners and House Surgeons. By F. Lockhart Mummery, F.R.C.S. Eng., B.A., M.B., B. C. Cantab. Second Edition. Illustrated. New York: William Wood & Company. 1905.

Transactions of the American Surgical Association. Volume xxii. 1904.

Thirteenth Report of the State Board of Health of the State of Maine, for the years ending December 31, 1903.

The Diseases of Society. (The Vice and Crime Problem.) By G. Frank Lydston, M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1904.

Transactions of the New Hampshire Medical Society at the One Hundred and Thirteenth Anniversary held at Concord, May 19 and 20, 1904.

Address.

MANUEL GARCIA.*

BY JOHN W. FARLOW, M.D., BOSTON.

To-day there was celebrated in London the one hundredth anniversary of one who, still living and active, has well been called the father of laryngology. There is probably no laryngological society in the world which has not sent its letter of congratulation to the distinguished centenarian, Manuel Garcia, in recognition and appreciation of the great service which he rendered to the whole world by his successful laryngoscopic examinations of the larynx, and his paper entitled "Physiological Observations on the Human Voice," which gave such impetus to the examination, diagnosis and treatment of laryngeal disease that speculation and deepest ignorance soon gave way to the science of laryngology.

Let us inquire what his antecedents were, what sort of a man he was and what led him, who was not a medical man, but a singing teacher, to make his experiments on the larynx. According to Chorley, the great English musical critic, the Garcias were a Spanish family of musicians and representative artists whose power, genius and originality have impressed a permanent trace on the records of the methods of vocal execution and ornament. The father of Manuel Garcia was Manuel Garcia del Popolo Vicenti, born in Seville, Spain, in 1775. He began his artistic life at six years of age as chorister at the cathedral, and studied music under the best masters of Seville. At the age of seventeen, he made his début at Cadiz in an opera of his own composition. Later he went to Italy and studied the Italian method. He appeared in opera in Paris in 1808, where he was received with much applause and his style of singing was greatly appreciated. In 1824, he went to London and thence to New York, in 1825, with a company of excellent artists, among them his son, Manuel, and his daughter, Maria, better known under her subsequent name of Malibran, one of the most famous opera singers the world has ever known.

They appeared in Italian opera in New York with much success, and later went as far as Mexico. They were on the point of returning to Europe, when he was set upon by brigands, on the way to Vera Cruz, and robbed of his well-earned wealth, about thirty thousand dollars. He had hoped to found an Italian theatre in New York, but the loss of all this money compelled him to return to Paris, where he soon retired from the stage and devoted himself exclusively to teaching, until his death in 1832. His method of singing was unsurpassed, and some of the most celebrated singers were his pupils, among them his son, Manuel, his daughter, Mme. Malibran, whom I have already mentioned, and also his daughter, Pauline, Mme. Viardot, who became very famous as an opera singer. He wrote excellent treatises on the art of singing.

His son, Manuel, was born in Madrid, March 17, 1805, just one hundred years ago to-day. He studied music under various teachers in Madrid and Paris and later under his father. His lessons were interrupted in 1825, when he was twenty years old, by his journey to New York with his father's opera company, in which he sang second bass. After his return to Europe he gave up the theatre and assisted his father in teaching singing at Paris. He studied seriously the conformation of the vocal organs, the limits of the different registers of the voice and the mechanism of the larynx in singing and presented the subject at the Academy of Science in Paris in 1840, in a work entitled "*Mémoire sur la Voix humaine*," and received the congratulations of the Institute

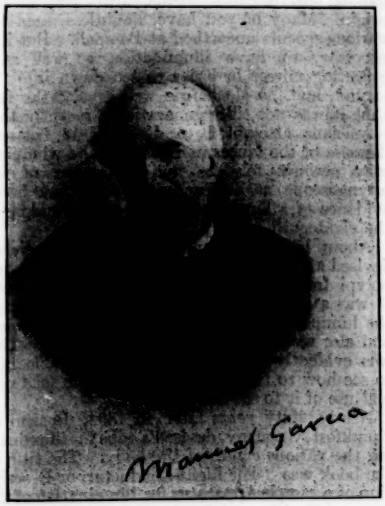

Fig. 1. Manuel Garcia.

for it. He was Professor of Vocal Music at the Paris Conservatory of Music from 1842 to 1850, and published a book in two parts on singing, for the use of pupils and especially of teachers, an excellent work containing many novel ideas. In 1850, he went to London and became Professor at the Royal Academy of Music. His wife, whose maiden name was Eugénie Mayer, was one of his pupils and became a noted opera singer. He has trained the voices of many of the most famous artists, among them Jenny Lind. Of late years he has lived in London and his address is Mon Abri, Cricklewood, London. We see that he was no ordinary music teacher. Of a distinguished musical family, he had been interested in the throat, the larynx and the voice for many years and had published, as early as 1840, a

*Read at the meeting of the New England Otological and Laryngological Society, March 17, 1905.

treatise on the voice worthy of the commendation of the French Academy.

Let us look for a few moments at the attempts of the predecessors of Garcia to see the larynx in the living, human subject. In these days, when the study of laryngology is compulsory for a medical degree, and when every student is obliged to have a fair amount of attainment in the use of the laryngeal mirror, it seems strange to read, in an article published by Yearsley in London, in 1862, seven years after Garcia's paper and four years after Czermak's demonstrations, that he feels that the subject is such an important one that he hopes there will be in every large city at least *one* practitioner who is expert in the use of the laryngoscope.

It is probable that dental mirrors had been used at intervals from time immemorial for examining the teeth, and polished tubes for looking into the external canals are of very ancient origin. Many of you have, doubtless, seen the various specula unearthed at Pompeii. But it is necessary to have illumination as well as a reflecting mirror in order to see down into the larynx, and, as Mackenzie well says, "the fact that it was not till comparatively recently that physicians attempted to discriminate between diseases of the fauces and those of the windpipe, may account for the non-appearance of the laryngoscope at an earlier date. There is no evidence of a laryngoscope before the middle of the eighteenth century."

About 1743, M. Levret, a French accoucheur, devised a sort of speculum to aid him in removing polypi from the nose and throat by ligatures. It was a plate of polished metal which reflected the luminous rays in the direction of the tumor and also received the image of the tumor. This was evidently merely something to enable him to see how to tie his ligatures, and he made no real use of it to see the larynx.

Nearly sixty years later, in 1804, Bozzini of Frankfort, Germany, devised a tube for illuminating the various canals of the body. The title of the book was "The Light-Conductor, or Description of a Simple Apparatus for Illumination of the Internal Cavities and Spaces in the Living Body." An absurd idea was commonly held that the apparatus would permit an inspection, not only of the outlets of the body, but even the internal viscera. The medical faculty, particularly that of Vienna, was down on him for his pretensions and styled his instrument the "Magic Lantern in the human body."

His invention, of which I show you a drawing, consisted of two essential parts, first a kind of lantern and second a number of hollow metal tubes (specula) for introducing into the various canals of the body. The lantern was vase-shaped, made of tin, in the center of which was a small wax candle. In the sides of the lantern were two round holes, a larger one and a smaller one opposite each other. To the smaller, an eye piece was fixed, and to the larger the speculum. The flame of the candle was situated just below the level of these two apertures. The mouth of the speculum, a tube of polished tin or silver, was always of the same size, but the diameter of the tube beyond the orifice varied according to the size of the canal into which it had to be introduced. The apparatus was about thirteen inches high and at the downward bend of the laryngeal

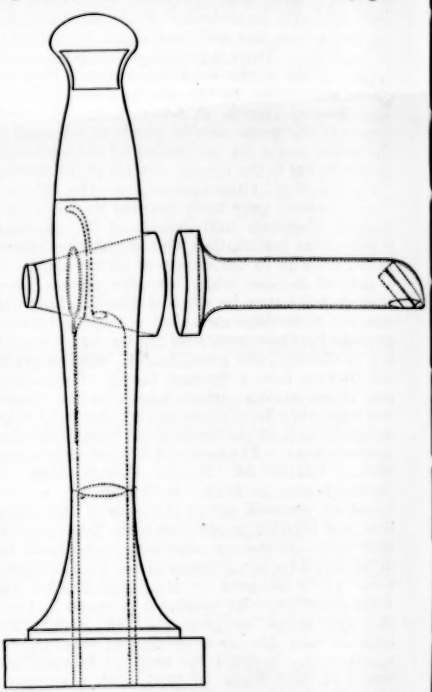

FIG. II. Laryngoscope of Bozzini, showing the vase-shaped lamp with candle inside. The speculum with the two small mirrors at the bend is to be attached to the larger opening in the side of the lamp. For looking down into the larynx, the small end of the speculum is directed downwards, and it can be turned upward when the post-nasal space is to be examined.

tube were two mirrors. In employing reflected light he had the speculum divided by a vertical partition, so that there were two canals and two mirrors, one to convey light and one to receive it.

Later I will give some of the objections to the value of such tubes in the throat. Suffice to say here, that nothing of value came from its use in the throat.

In 1827, Dr. Senn, of Geneva, had a little mirror constructed for introduction to the back of the pharynx, with which he tried to see the upper part of the larynx, but he gave up its use on account of the small size of the instrument.

In 1829, Dr. Benjamin Guy Babington, at a meeting of the Hunterian Society of London, showed an instrument, not very unlike the laryngoscope now in use, for examination of the parts within the fauces not admitting of inspection by unaided sight. He used two mirrors: one, the

smaller, for receiving the laryngeal image in the throat, and the larger for concentrating the solar rays on the first one. The patient sat with his back to the sun, and, while the illuminating mirror (a common hand looking-glass) was held in the left hand the laryngeal mirror was introduced into the mouth with the right hand. By

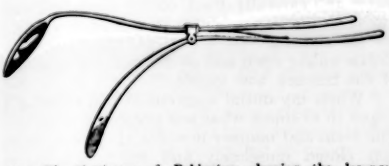

Fig. III. Glottiscope of Babington, showing the laryngeal mirror and the tongue depressor.

a simple mechanism, a tongue depressor was united with the laryngeal mirror and thereby one of the most serious obstacles to laryngoscopy was attempted to be overcome. A spring was fixed between the shank of the laryngeal mirror and the spatula in such a way that by pressing the two handles together the tongue was depressed. At a later period he gave up the combination of mirror and spatula and had mirrors made which resembled those now in use. They were of polished steel inclined to the shank at an angle of about 120°. Though he used his mirrors on many patients, there are no cases recorded in which it was employed. He made a decided advance over Senn, who used merely a laryngeal mirror and no mirror for throwing in light. The difference between Dr. Babington's glottiscope, as he called it, and the one now in use is that, while in the latter the light is thrown on the laryngeal mirror by a circular mirror attached to the forehead of the operator, in the former the illuminating was effected by a mirror held in the operator's left hand and also no artificial light was used.

In 1832, Dr. Bennati, of Paris, asserted his ability to see the vocal cords. A mechanic named Selligue, who was suffering from tubercular laryngitis, had invented a double-tubed speculum, of which one tube served to carry the light to the glottis, and the other to bring back to the eye the image of the glottis reflected in the mirror placed at the pharyngeal end of the tube, and his larynx was examined and treated by Bennati by means of this apparatus.

Trousseau, the great French clinician, had a similar tube made for himself, but found it of very little value, as not more than one patient in ten could tolerate it. He says, "it is of such a size that it fills up the space between the free edge of the soft palate and the tongue. It causes gagging, retching and closure of the pharynx, which prevents a view of the parts lower down," and he asserts that "Bennati is in error in saying that he has seen the glottis with the speculum of Selligue. He saw only the upper part of the epiglottis and very rarely the superior entrance of the larynx and that only when the accidental straightening out of the epiglottis permitted." Trousseau recommends, instead, a digital examination of the larynx, which shows what he thought of specula.

In 1838, Baumès showed at the Medical Society of Lyons a mirror about the size of a two-franc piece, which he described as very useful for examining the posterior nares and larynx, but no cases are recorded.

In 1840, Liston, a Scotch surgeon, in his work on practical surgery, in treating of edematous tumors which obstruct the larynx, says: "The existence of this swelling may often be made out by a careful examination with the fingers and a view of the parts may sometimes be made out by means of such a glass as is used by dentists, on a long stalk, previously dipped in hot water, introduced with its reflecting surface downward and carried well into the fauces." Although much credit has been given to Liston, it is obvious that he never contemplated an inspection of the vocal cords. It is plain that he thought the sense of touch was more to be relied on than that of sight, and he evidently referred to the epiglottis rather than the parts below.

In 1844, Dr. Warden, of Edinburgh, reported two cases in which he had been able to see the glottis by means of a tube and two prisms, one for throwing light into the tube and the other placed in the pharyngeal end of the tube for deflecting the light down on to the glottis. To

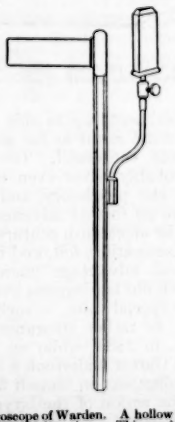

Fig. IV. Laryngoscope of Warden. A hollow canula with a long handle to which is attached a prism. This can be turned in various directions in order to divert the light from a lamp into the canula. A small prism with a metallic handle is then passed along the floor of the canula to its laryngeal end, where it serves to divert the light down to the larynx. This second prism is not shown in the figure.

facilitate the examination (which the patient evidently found rather strenuous) he advised quieting the irritability of the throat by touching it with the finger, depressing the tongue, dilating the fauces and encouraging the patient to swallow in order to lift up the arytenoids and the epiglottis. Such a method was of no practical value.

In 1844, Mr. Avery, of London, made use of a circular reflector, perforated in the center, for concentrating the light on a laryngeal mirror. This was attached to a head-band worn by the operator. The reflector was five inches in diameter and the apparatus worn on the head weighed a pound. The small laryngeal mirror was placed at the end of a speculum, as in Bozzini's case, but it was very difficult to use on account of its irritating the throat. No cases seen with this instrument are recorded, and it was not published until after Garcia's paper.

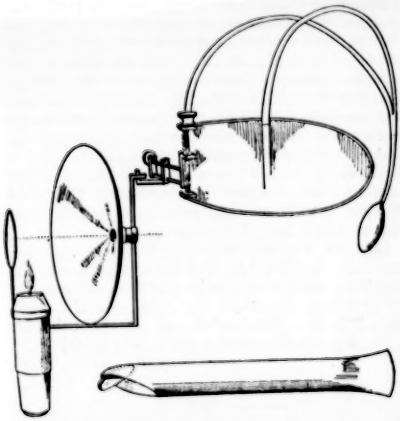

FIG. V. Avery's Laryngoscope. Head band, mirror, lamp speculum with mirror inside, handle of small mirror not shown in figure.

All the experiments up to this time had produced no practical result as far as knowledge of the larynx was concerned. The larynx as a whole had probably never even been seen and, consequently, the physiology and pathology of the organ were no further advanced than in the early part of the nineteenth century. An isolated, incomplete examination, followed by no theoretical or practical advantage, merely a medical curiosity, which did not impress even its inventor as having any special value, — such was the state of knowledge, or rather ignorance of the living larynx, when, in 1854, while on a vacation in Paris, Manuel Garcia undertook a series of laryngoscopic examinations on himself for the purpose of studying the action of the larynx in the production of the voice. He was unaware of what had been done by his predecessors; in fact, they had not done much that could help his studies.

"One day in September, 1854," he says, "when I was sauntering about the Palais Royal, busied with the wish often put aside as unattainable but yet always urgent, namely, to see the glottis during the act of singing, I suddenly saw both mirrors of the laryngoscope in their respective positions as clearly as if my eyes actually beheld them. I immediately hastened to Charrière, the instrument maker, and in answer to my inquiry if he happened to have a little mirror on a long handle, he replied that he had a small dental mirror which had been exhibited in the London Exposition of 1851, but which had been found unpractical. I bought it for six francs. After procuring a small hand mirror, I hastened home in great impatience to begin my experiment. I laid the little mirror, which I had warmed in hot water and carefully dried, on my uvula, and with the hand mirror concentrated a beam of sunlight on its surface. To my great joy, I saw the glottis widely open and so distinct that a portion of the trachea was visible.

"When my initial excitement had subsided, I began to examine what was presented to my eye. The form and manner in which the glottis opened and closed noiselessly and its movements in phonation filled me with astonishment."

He was the first to conceive the idea of an autoscopic examination. He directed that the person experimented on should turn towards the sun so that its rays falling on the little mirror in the throat should illuminate the glottis. He also said that if the observer experimented on himself he should, by means of a second mirror, receive the sun's rays and direct them on to the throat mirror. He occasionally advised the use of a perforated head mirror, when he was being examined by another person.

In 1855, just fifty years ago, he presented before the Royal Society of London his paper entitled, "Physiological Observations on the Human Voice," which contained the first, and a very admirable, account of the action of the cords in inspiration and vocalization, some very important remarks on the production of sound in the larynx and also valuable reflections on the formation of chest and falsetto tones.

This paper created little stir at the time, and was treated with apathy, if not incredulity. It was known that he had a very tolerant throat which he, as a trained singer, had under perfect control, and his observations were thought to be merely personal and not of universal application. The fact that he was not a medical man may have lessened the interest of physicians in this epoch-making discovery.

His paper, however, passed into the hands of Türck of Vienna, who, two years later, in 1857, during the summer months, employed the mirrors and methods of Garcia on himself, and also at the Vienna General Hospital; but the uncertain light and the frequent absence of sun made him inclined to lay aside his studies, and he even declared that he was "far from having and exaggerated hopes about the employment of the laryngeal mirror in practical medicine." He was a fine musician and an able physician any was much helped in the publication of his classical work on "Diseases of the Larynx," which he published later, by Dr. Effinger, a noted water-color artist, who illustrated the conditions seen in the laryngoscopic cases which came under Türck's care after the method had been perfected by Czermak.

This final step in the progress of laryngoscopy

was made by Czermak, Professor of Physiology in Pesth, in Hungary. He had a very large pharynx, small tonsils and uvula, and was a splendid subject for laryngoscopy.

In order to study the production of certain guttural sounds, such as occur in the Arabic language, in 1857, he borrowed from Türck the little mirrors which the latter had thrown aside as useless. In order to be independent of the sun and weather, he substituted artificial light for sunlight and made use of the large concave, ophthalmoscopic mirror of Ruete for concentrating the luminous rays. Full of enthusiasm, he made journeys to Germany, France and England, journeys which were considered impossible, at that time. By his demonstrations on himself and others, he compelled an interest and knowledge of this new discovery, and at this time the "Science of Laryngology" took its origin. In 1858, he published his first essay, entitled: "Physiological Researches with the Laryngeal Mirror of Garcia," thus showing the importance he attached to the work that had been done by Garcia.

At the time of Czermak's great activity a marked controversy arose between him and Türck in regard to various questions of priority in the use of these mirrors and methods. The rivalry, unfortunate for the two individuals, had the effect of attracting attention to the subject and, in a way, was a means of making known the merits of this new mode of diagnosis and treatment.

It would be unpatriotic did we not mention a fact, probably unknown to most of you, that Massachusetts has also had a small share in the history of laryngoscopy. In January, 1858, Dr. Ephraim Cutter, of Woburn, Mass., in conjunction with Mr. G. B. Clark, of Cambridge, the noted lens and telescope maker, devised a laryngoscope similar to that of Bozzini. It consisted of two tubes, one for observation and the other for illumination, and at the oval, pharyngeal end was a prism to divert the rays of light into the larynx. I can show you a drawing of Cutter's proposal and also of what Clark wished to substitute, but I am not aware that it came to any practical use. Perhaps some of the older members of this society may know something of its fortune.

Looking over the various experimenters whom I have mentioned, we may say, in a general way:

(1) Bozzini first attracted attention to the importance of seeing into the different cavities of the body, and to some extent succeeded.

(2) Babington was, in a certain sense, the discoverer of laryngoscopy.

(3) Baumès, Liston and Warden and Avery made apparently independent efforts to examine the larynx.

(4) But to Garcia is due the merit of having first made an extended series of examinations of the healthy larynx.

(5) And to Czermak must be awarded the praise of having diffused the knowledge of the instrument and shown its value in the study of disease.

The tubes and specula had no practical result. The mirrors of Babington and Liston and the illumination of Avery were not so very unlike what we have to-day. But no knowledge of the larynx, no literary contribution, came until Garcia.

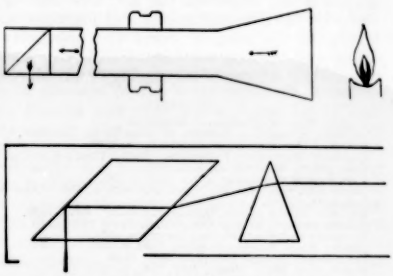

FIG. VI. Cutter's Laryngoscopic Tubes. Upper one with prism inside is Cutter's idea for illumination of the larynx, and lower one with two prisms is Clark's suggestion.

As a singer, he had learned to depress the base of his tongue, but he did not advocate in examination the drawing forward of the tongue by the left hand of the operator, and, consequently, he generally failed to see the anterior part of the cord. Fortunately, it is the posterior part where most of the motion in speaking and singing takes place, hence he was able to publish his very complete paper on the "Human Voice." In this paper, read before the Royal Society in London in 1855, he says: "At the moment when the person draws a deep breath, the epiglottis being raised, we are able to see the following series of movements: the arytenoid cartilages become separated by a very free lateral movement, the superior ligaments are placed against the ventricles, the inferior ligaments are also drawn back. though in a less degree, and the glottis, large and wide open, is exhibited so as to show in part the rings of the trochea. As soon as we prepare to produce a sound the arytenoid cartilages approach each other and press together by their anterior surfaces without leaving any space. Sometimes they even come into so close contact as to cross each other by the tubercles of Santorini." These are certainly the words of one who has seen critically, exactly and repeatedly, not only the epiglottis, but the cords and the whole larynx. He gave also very valuable information on the chest, head and falsetto registers, and showed that the vocal cords and not the ventricular bands exclusively form the voice, whatever its register or intensity. Although not a medical man, his work was considered so valuable that he was given an honorary degree of M.D. by the University of Königsberg, in Germany.

I have tried to bring before you a few facts in regard to the artistic and highly musical antecedents and surroundings of Manuel Garcia; his great success as one of the most famous teachers of singing in the world, his painstaking studies

of his own larynx, after so many others had failed or their efforts had resulted in nothing of value; his noteworthy paper before the Royal Academy, the first *exposé* of the appearance and action of the living human larynx; his honorary medical degree; the fact that his mirrors were used by Türck and Czermak, who, especially the latter, amplified and improved the art; and more especially by his demonstrations and journeys made known to the medical world the possibility of seeing and treating the larynx and thus making possible the science of laryngology and rhinology.

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Original Articles.

A METHOD OF PRODUCING ETHER NARCOSIS BY RECTUM, WITH THE REPORT OF FORTY-ONE CASES.

BY JOHN H. CUNNINGHAM, JR., M.D., BOSTON,
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AND
F. H. LAHEY, M.D.,
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THE idea of producing narcosis by injecting ether vapor into the rectum occurred to the writer while serving as house surgeon under Dr. Abner Post at the Boston City Hospital in 1903. This idea was founded upon the fact that rectal enemata were so successfully absorbed. The subject was suggested to Dr. Post, who informed him that the method was an old one, and the writer was referred to an article written by Dr. Post in 1884, when he and Dr. George W. Gay employed the method in a few cases at the Boston City Hospital. A careful search of the literature revealed the following history:

The first mention of producing ether narcosis by the rectum appears in Pirogoff's book on etherization, published in 1847 in St. Petersburg. About the same time Roux[1] made experiments upon the subject, as did Vincente y' Yhedo and Marc Duprey, employing injections of ether pure and mixed with water. Their observations, although demonstrating the practicability of this method of producing complete anesthesia, excited little interest.

No mention of the practice appears again until 1884, when Molliere,[2] following the suggestion of Dr. Alex Yversen of Copenhagen, employed the method at l'Hôtel Dieu de Lyon and established its merit. His experiments were made with a simple apparatus similar to that employed by the earlier investigators. It consisted of a large bottle almost filled with ether from which a tube conducted the vapor to the rectum. The bottle was placed in a water bath which had a temperature greater than the boiling point of ether. By this means the ether was made to boil, and by its own volatile expansion was carried over into the rectum. Molliere produced complete anesthesia in from ten to twenty minutes, and used only a small quantity of ether (10 gms.) in so doing. Unlike the results of Pirogoff's and Roux's experiments, those of Molliere created considerable interest and several surgeons practiced the method with variable results.

Hunter[3] reports six cases which he summarizes as follows: "The method in question promises, in my opinion, to effect a radical improvement in the method of administering ether. A striking feature is the small quantity of ether required, showing how large a quantity is commonly wasted. The absence of any unpleasant sensations on the part of the patient is a matter of no small importance. The rapidity with which anesthesia can be induced and the general absence of struggling and opposition by the patient give the rectal method a decided value, even if it should be used only as a preliminary step to the usual method." Hunter makes no reference to diarrhea or other ill effects being produced by the employment of this method.

Weir[4] mentions seven cases where rectal etherization was employed by Dr. William T. Bull with the result that nearly all had bloody or simple diarrhea following, and that one case became collapsed afterward. He also cites two cases of his own. One was a boy fourteen years of age who received rectal ether for fifteen minutes, and although he became sleepy and the breathing sterterous, sensibility was not completely lost and etherization in the ordinary way became necessary. His other case was a robust child of eight months, upon which he operated for hare-lip. The child was fully anesthetized in three minutes and the operation completed successfully. The amount of ether used was in all less than two ounces. The child was "somewhat depressed" at the end of the operation, but rallied under stimulation and heat. During the night it had several bloody movements and died the following morning.

Wanscher[5] records twenty-two cases anesthetized by injecting ether vapor into the rectum

[1] Jour. de l'Academie des Sciences, xviii, 47, p. 146.

[2] Lyon Medical, 1884, xlv, p. 419.
[3] New York Med. Rec., 1884, xxv, p. 507.
[4] New York Med. Rec., 1884, xxv, p. 508.
[5] Cong. Internat. Med. Sciences, 1884, ii, p. 186, Sec. 1.

after the method suggested by Pirogoff, and speaks in most favorable terms regarding his results. He mentions one especially noteworthy case which explains the occasional difficulty in producing narcosis by the rectal method. In this case he gave rectal ether for between thirty and forty-five minutes with no result. Knowing that the patient's bowels had not been properly cleaned out he postponed the operation, emptied the bowel and rectum of its contents and the following day repeated the etherization. The patient was completely etherized in thirteen minutes. There are several cases in our series that corroborate this observation, and it might be said that difficulties in rectal etherization arise only from failure to have the bowel clean.

Post,[8] reports three cases etherized at the Boston City Hospital by the rectal method. The first case was a man with cellulitis of the arm, with general toxic symptoms. He was completely anesthetized in thirteen and a half minutes. The ether was then discontinued and complete anesthesia continued for nearly a half hour. Several hours later he had two loose movements which contained much gas. A starch and opium enema was given and no further diarrhea resulted. The second case was one which came to the hospital after having eaten a hearty breakfast. The patient received rectal ether for thirty-four minutes, at which time she was completely anesthetized, one and three quarters ounces of ether being used. During the etherization the abdomen became slightly distended and the gas was expelled by abdominal pressure. The patient vomited about an ounce of fluid once, following the ether. There was a normal movement from the bowel about one hour later and subsequently two slightly loose movements, one of which was tinged with blood. The third case was one with hemorrhoids. Etherization was complete in fifteen minutes and a little less than two ounces of ether was used. There was no vomiting or diarrhea following the etherization.

Hewett, in his book, "Anesthetics and Their Uses," 1901, speaks of the early work of Alex Yversen and Molliere and the cases of Weir and Bull. He mentions Dr. Buxton's preference for rectal etherization in operations upon the upper extremity. He makes no statement that leads one to believe that he has had any personal experience with this method of ether administration.

Buxton, in his book on "Anesthetics," 1900, states that he has employed the method "pretty extensively" and strongly advocates its use in operations about the head and neck and for empyema.

Advantages. — It is obvious that a free and continuous access to the field of operation is a great advantage to the surgeon. In operations upon the head, face, mouth, nose, throat, ear, eye and neck the absence of the ether cone not only lessens the technical difficulties of the operation, but also minimizes the chances of sepsis and lessens considerably the time necessary to perform the operation.

[8] Boston Medical and Surgical Journal, 1884, cx, p. 442.

Experience has shown that the patient passes under the influence of the drug rapidly and with no sense of suffocation; that less ether is used, not only in producing the narcosis, but also in maintaining it; that the stage of excitement is lessened or absent; that the ether recovery is more rapid, and that the disagreeable after effects of inhalation ether narcosis are diminished or absent. It is also noteworthy that alcoholics pass through the stage of excitement with little, if any, resistance or struggling.

The employment of this method of etherization in diseases of the lungs, especially tuberculosis, abscess and pneumonia, immediately suggests itself. The same might also be said of empyema, mediastinal abscesses and new growths.

Although it is true that the greater part of the ether is eliminated through the lungs as in inhalation narcosis, the direct irritation of the concentrated vapor is overcome, and post-operative pneumonia should be lessened.

The absence of bronchial secretions in our series of cases has been a striking feature.

As has already been pointed out by Dr. Wanscher, the patients that have taken ether by inhalation and by rectum express a preference for the rectal method. The chief explanation being that the convalescence is easier.

Disadvantages. — To say that this method has no disadvantages in view of the fact that it has lain idle for a period of twenty years seems startling. By the old method of administration there were distinct disadvantages which warranted the discarding of this method of ether administration. These were rectal disturbances, and the inability to control the stages of narcosis.

It has been claimed by some that ether narcosis by rectum produces diarrhea and melena. This may be easily explained when we consider the old method of administration, which was to place a bottle of ether in a boiling water bath and allow the vapor to be carried over into the rectum by its own expansion. By this method there was no means of appreciating the amount of ether passing into the rectum, and the ether going over at a high temperature was condensed in the tube and rectum.

To overcome these two objectionable features, the illustrated apparatus has been employed. In our series of cases there has been no diarrhea or bloody stools, the bowels being rather constipated than otherwise. In those patients who were properly prepared the bowels have moved for the first time on the third to the fifth day. It has been suggested that this absence of rectal irritation may be due to the better quality of ether now in use, as well as to our method of administration.

Colicky pains and painful distention mentioned by Buxton as after effects have been noted in a few of our cases. Pain has been so slight and has passed off in so short a time that it can hardly be considered a disadvantage. This pain has been noted more particularly in those cases not properly prepared.

It is probably not desirable to employ this

method in abdominal cases on account of the distention, but there seems to be no reason why it should not be employed to produce narcosis preliminary to the administration of ether by mouth.

Technic. — To obtain the best results it is essential that the bowels should be thoroughly cleaned out. It has been our custom to give two ounces of a saturated solution of magnesium sulphate on the evening before operation, and early the following morning a large suds enema. Just before going to the operating table another similar enema is given.

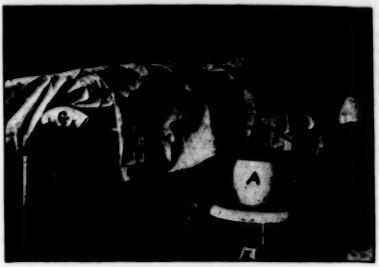
The ether breakfast has consisted of two ounces of beef tea.

Apparatus. — We began our experiments with a wash-bottle six inches in height and two and a half inches in diameter. Of the height four inches was used for ether space and two inches for vapor space. A simple straight glass tube led to the bottom of the bottle and was connected with the afferent tube. The efferent tube, leading to the rectum is connected with a glass tube, the proximal end of which was flush with the inner surface of the rubber stopper. This was a satisfactory apparatus except that the bottle did not hold enough ether without refilling during a long operation. Later, we tried an apparatus in which the wash-bottle was twelve inches in height and one and a half inches in diameter, allowing a nine inch column of ether for the bubbles to ascend through. This was discarded as it was difficult to keep the apparatus right side up, and the small amount of ether used rapidly cut down the height of the column, owing to its small diameter.

Later the Davidson apparatus, which is used to administer warm ether vapor through a hard rubber tube in the corner of the mouth, was tried, being attached to the rectal tube, and was discarded because of the foot pump and the stop-valve in the efferent tube, the foot-pump filling the bag which caused a constant flow of ether when the stop-valve was opened. In administrating the anesthetic in this way it is impossible to appreciate as accurately the amount of ether being given as with the bulb method about to be described.

The apparatus which we have used on all our later cases and which has been the most satisfactory consists of a bottle the body of which is seven and a half inches in height, five inches being used for ether space, two and a half inches and the neck for vapor space. The diameter is four inches and the capacity on the ether space twenty-nine ounces, so that a large amount of ether may be used without materially lowering the ether column. The afferent tube which leads to the bottom of the ether column ends in a bulb with several small perforations so that the air ascends in several small bubbles. The stopper and the connections should be tight.

The bottle is placed in a water bath at a temperature of between 80° and 90° F. Ether boils at 98.6° F. It is desirable to keep the temperature below this point. By keeping the ether as warm as possible without boiling, the air forced in by the bulb is more easily saturated. If the operation is a long one it may be desirable to renew the temperature of the bath. We have employed Patch's ether in most cases.



A, warm bath completely submerging column of ether. *B*, wash-bottle containing ether. *C*, afferent tube attached to *B*, wash-bottle, on one end and bulb on other end. *D*, efferent tube connected at the proximal end to *B* wash-bottle, at the distal end to *F*, rectal tube. *E*, bulb. *F*, rectal tube. Rectal tube does not show as connection is made behind sand bag. *G*, sand bag under patient's thigh.

The efferent tube should be sufficiently long to allow moving the wash-bottle away in case the operator wishes to change his position from one side of the table to the other. We have tried efferent tubes of varying lengths and have noticed no difference in the results; ether in no case being condensed in the efferent tube.

The afferent tube should be of sufficient length to allow the etherizer to inspect the patient from head to foot still retaining the bulb in hand. We have not found it necessary to employ an "interseptor" as no ether is condensed in the tube.

We have tried rectal tubes with eyes placed at various intervals; but these have had no advantage over the stiff rectal tube with a single eye at the end, and do have the disadvantage of kinking more easily on account of the eyes weakening the tube.

Administration. — The patient lies upon the back with the legs held in slight flexion by a sandbag placed under the thigh. A stiff large-sized catheter or rectal tube is inserted into the rectum for a distance of from ten to fourteen inches. The efferent tube is now connected with the rectal tube and the vapor forced in until considerable gas is pressed around the rectal tube. Keeping the forefinger in the rectum beside the tube, unless it causes the patient pain, hastens the expulsion of the rectal gases.

It is essential that the rectum be distended to the point of emptying itself around the tube, for we have learned that without first removing the gas normally in the bowel the patient absorbs the ether much more slowly, presumably because of the dilution of the ether gas by the gases normally in the gut. After this gas has been expelled the ether should be forced in by a few squeezes of the bulb every five or ten seconds, or until it is expelled about the tube. A little

experience with the method will enable one to keep the proper amount of ether gas in the rectum without its being expelled around the tube.

At the first introduction of the rectal tube, or the first volume of ether, the patient may feel a natural discomfort and desire to defecate; but in a short time this sensation disappears. The breath becomes ether laden in from one to five minutes after the ether is started. The patient gradually becomes drowsy, the breathing stertorous and he then passes into complete surgical narcosis without any stage of excitement.

Narcosis being complete the same signs regarding the patient's condition should guide the anesthetist as in administrating ether by inhalation.

Care should be exercised after complete narcosis has taken place to see that the jaw does not drop down allowing the tongue to fall back over the larynx. In one of our early cases the patient became partially asphyxiated through neglecting this precaution. When the jaw was drawn forward the natural color returned to the face and the patient began to breath normally.

After narcosis is complete two or three squeezes of the bulb a minute will usually suffice to keep it so. It is noteworthy that the patients may be "run light" as they usually respond rapidly to the injections after being once etherized.

If the patient becomes too profoundly anesthetized the efferent tube should be disconnected and such ether-gas as is in the bowel forced out through the rectal tube by abdominal massage. An oxygen tank should be connected with the rectal tube and this gas made to distend the bowel. Artificial respiration and stimulation should be resorted to in the usual manner. When the operation is complete it has been our custom to expel as much of the gas-ether as possible by massage of the abdomen with the rectal tube still in position.

Following is a brief summary of each of our cases. The first five cases are those etherized on Dr. Post's service at the Boston City Hospital in 1903, by Dr. Daniel F. Mahoney. Most of the remaining cases are from the surgical clinic of the Long Island Hospital and were etherized by Dr. Lahey who has kept the careful records of the results. A few of the cases have been etherized by other house officers, Drs. F. F. Andrews and F. M. Page.

Case I. — *Fracture of the skull. Operation, trephine.* Ether started by mouth and maintained for seven minutes, the patient then being quiet. Previous to administration of ether, he was unconscious, but restless, with repeated convulsions. Amount of ether used by mouth was 1 oz. Duration of etherization by rectum was forty minutes. Amount of ether used by rectum was 3½ oz.

Remarks: The patient never gained consciousness and died thirty-six hours later. He vomited constantly until his death, during which time he also had incontinence of urine and feces, and which features were unquestionably due to the character of the injury.

Case II. — *Plastic on nose.* Ether started by mouth and maintained for fifteen minutes, the patient then being through the primary stage. Amount of ether by mouth, 4 oz. Duration of etherization by rectum was forty-five minutes. Amount of ether used was 3 oz.

Remarks: The patient was out of the ether completely two hours after the ether was taken off. How much sooner consciousness was regained is not known as the observation was not made until this time. The patient vomited once only. The bowels moved twelve hours after the operation. The movement was only a few ounces and was watery. There was no evidence of blood or mucus. The next movement was three days later and was normal.

Case III. — *Bullet in skull.* Ether started by mouth and maintained for six minutes, the patient then being in the primary stage. Amount of ether used by mouth, 1 oz. Duration of etherization by rectum was thirty minutes. Amount of ether used by rectum was 6 oz.

Remarks: The patient had only a suds enema just before going to the table as preparation for the ether. During the operation he often moved his legs, and although unconscious at all times, he was not entirely relaxed until the latter part of the operation. The patient vomited but once, which vomitus contained partially digested food. There was nausea for four hours following the operation. The bowels moved twelve hours after operation. The movement was watery and might have been part of the enema given just before going to the operating table. There was no blood in the movement. The bowels moved next on the third day following the operation.

Case IV. — *Carcinoma of the upper lip.* Ether started by mouth and maintained for twelve minutes, the patient then being in the stage of excitement. Amount of ether used by mouth was 3 oz. Duration of etherization by rectum was twenty-five minutes. Amount of ether used by rectum was 2 oz.

Remarks: Entirely out of ether one hour after ether off. Previous observations not made. No vomiting or rectal disturbance. The bowels moved one day after operation. The stool contained no blood.

Case V. — *Tubercular glands of neck.* Ether started by mouth and maintained for fifteen minutes. Amount of ether used was 5 oz. Ether by rectum for forty minutes. Amount of ether by rectum was 4 oz.

Remarks: The patient was conscious two hours after operation. Vomited twice, mostly mucus. The bowels moved twice during the first twenty-four hours. The patient had no preparation the morning of the operation.

Case VI. — *Carcinoma of lower lip. Brun's operation.* Ether started by mouth and maintained for ten minutes, the patient then being in the primary stage. Amount of ether used by mouth, 2 oz. Duration of etherization by rectum one hour and twenty-five minutes. Amount of ether used by rectum, 9 oz.

Remarks: Knee reflexes returned fifteen minutes after the ether was taken off. Completely out of ether one hour and fifteen minutes after ether stopped. Vomited 2 oz. about thirty minutes after ether. Patient put upon rectal feeding twelve hours after operation which was maintained for ten days. The usual cleansing enema of suds was given every morning. Five days after operation the patient had a small bloody stool. Except for this there was no rectal disturbance.

Case VII. — *Dissection of the neck for tubercular glands.* Ether started by mouth and maintained for ten minutes, the patient then being through the primary stage. The amount of ether used by mouth was 2½ oz. Duration of etherization by rectum thirty-five minutes. Amount of ether used by rectum, 3½ oz.

Remarks: Knee reflexes returned seven minutes after ether stopped. Vomited one ounce soon after ether removed. Completely out of ether ten minutes

after ether off. No rectal disturbance. The bowels moved for the first time four days after operation.

CASE VIII. — *Dissection of the neck for tubercular glands.* Ether started by mouth and maintained for fifteen minutes, the patient then being through the primary stage. Amount of ether used by mouth, 3½ oz. Rectal etherization continued for one hour and twenty minutes. Amount of ether used by rectum was 9 oz.

Remarks: The patient was relaxed throughout the operation. Regained knee reflexes eight minutes after ether off. Conscious ten minutes later. Vomited only once, 1 oz., thirty-five minutes after ether off. No rectal disturbance. No abdominal pain. The bowels moved for the first time four days after operation.

CASE IX. — *Skin Graft.* Ether started by mouth and maintained through the primary stage; time, fifteen minutes. Amount of ether used by mouth, 4 oz. Duration of etherization by rectum twenty-five minutes. Amount of ether used by rectum, 6 oz.

Remarks: Knee reflexes returned twenty minutes after ether off. Conscious ten minutes later. Vomited once only, ½ oz., twenty-five minutes after ether off. No rectal disturbances or abdominal pain. The bowels moved for the first time three days after operation.

CASE X. — *Removal of silver wire from an ununited compound fracture of the tibia.* Ether started by mouth and maintained for fifteen minutes, the patient then being through the primary stage. Amount of ether used by mouth, 5 oz. Ether by rectum given for one hour and ten minutes. Amount of ether given by rectum, 10 oz.

Remarks: Knee reflexes returned thirty minutes after ether left. Conscious ten minutes later. Patient vomited 1 oz. three times after ether off; at intervals of one, two and three hours after operation. No rectal disturbances or abdominal pain. The patient has taken ether before and states that his ether recovery was much easier on this occasion. The bowels moved for the first time two days after operation.

CASE XI. — *Plastic on face.* Ether started by rectum. The patient became drowsy in about a minute and was completely etherized in three minutes, no stage of excitement being present. Duration of etherization one hour and fifteen minutes. Amount of ether used was 6 oz.

Remarks: The knee reflexes returned twenty minutes after the ether was taken off, and the patient was conscious fifteen minutes later. There was no vomiting. The patient was put on rectal feeding. On the fifth day following the operation he had a small bloody movement of the bowels. The rectal feedings were continued, however, with no further trouble.

CASE XII. — *Circumcision.* Ether started by rectum and the patient was completely etherized in three minutes. There was no stage of excitement. Duration of etherization, eighteen minutes. Amount of ether used was ½ oz.

Remarks: The knee reflexes returned about ten minutes after the ether was taken off, and regained consciousness ten minutes later. There was no mucus, vomiting or rectal disturbances. The bowels moved for the first time three days after operation.

CASE XIII. — *Reduction of an old subluxation of the knee.* Ether started by rectum. Completely anesthetized in seventeen minutes. There was no stage of excitement. Duration of operation forty minutes. Amount of ether used was 7 oz.

Remarks: The patient was conscious fifteen minutes after the ether was off. There was no vomiting or diarrhea, although the patient had a desire to defecate several times during the first twenty-four hours after the operation, but failed in the attempt. The bowels moved for the first time four days after the operation. There were no bronchial secretions. The patient had taken ether by inhalation several times during the past year and states that his recovery on this occasion was without the previous disagreeable features. He also states that except for the desire to defecate when the first volume of ether is introduced, the administration was without any unpleasant features.

CASE XIV. — *Skin graft.* Ether started by mouth. Patient took ether very badly and at the end of twenty minutes was struggling violently. Ether was then started by rectum and in three minutes later was completely anesthetized. Amount of ether used by mouth was 4 oz. Duration of etherization by rectum was twenty-five minutes. Amount of ether used by rectum was 2 oz.

Remarks: The patient was out of ether in thirty minutes after the ether was taken off. There was no vomiting or abdominal pain. The bowels moved for the first time three days after operation.

CASE XV. — *Cystic tumor of neck.* Ether started by mouth and maintained for fifteen minutes, the patient then being through the primary stage. Amount of ether used by mouth, 5 oz. Ether given by rectum for one hour. Amount of ether given by rectum was 5 oz.

Remarks: The patient was out of ether in one hour. No vomiting, diarrhea or abdominal pain. The bowels moved for the first time on the fifth day after operation.

CASE XVI. — *Osteotomy for bow legs.* — Ether started by rectum. Patient was completely anesthetized in five minutes. Duration of anesthesia was one hour. Amount of ether used was 6 oz.

Remarks: Patient out of ether in thirty minutes. No vomiting, diarrhea or abdominal pain. The bowels moved for the first time on the third day.

CASE XVII. — *Deep abscess of the lower leg.* This patient was in delirium tremens at the time of operation. He received no preparation except a suds and glycerine enema just before going to the table. Ether was started by rectum. The patient moved about continually and it was with some difficulty that he was kept on the table. It was not until 10 oz. of ether had been injected that the patient was quiet enough to operate upon.

Remarks: This case illustrates the necessity of thoroughly cleaning out the bowel before administrating the ether. The patient complained of sharp pains in the abdomen for three hours following the operation. The bowels moved the following day. There was no diarrhea.

CASE XVIII. — *Adenoids.* Ether started by rectum. Patient completely etherized in seven minutes. Duration of anesthesia was forty minutes. Amount of ether used was 4 oz.

Remarks: The knee reflexes returned fifteen minutes after the ether was taken off and the patient was conscious ten minutes later. There was no vomiting or abdominal pain. The bowels moved for the first time three days after operation.

CASE XIX. — *Carcinoma of lower lip.* Ether started by rectum. Completely etherized in twelve minutes. No stage of excitement. Duration of etherization was one hour and ten minutes. Amount of ether used was 8 oz.

Remarks: The patient was out of ether in twenty minutes. There was no vomiting or mucus. The patient was put on rectal feeding which was continued for eight days without rectal disturbance.

CASE XX. — *Tendon suture, flexor surface of wrist.* Ether started by rectum. Patient completely etherized in ten minutes. Duration of etherization was fifty minutes. Amount of ether used was 7 oz.

Remarks: Patient out of ether twenty minutes

after ether off. No vomiting or diarrhea. The bowels moved for the first time on the third day by calomel.

Case XXI. — *Osteoma of the forehead.* Ether started by rectum. Patient fully etherized seven minutes after ether started. Duration of etherization was thirty-five minutes. Amount of ether used was 3½ oz.

Remarks: There was no stage of excitement, although the patient states that while taking ether on a previous occasion that there was much difficulty in "getting under." There was no vomiting or diarrhea. The patient was out of ether twenty minutes after ether off. The patient has expressed a decided preference for the rectal method.

Case XXII. — *Dissection of the neck for tubercular glands.* Ether started by rectum. Complete anesthesia in eleven minutes. Duration of operation one hour and twenty minutes. Amount of ether used was 11 oz.

Remarks: The patient was out of ether twenty minutes after the ether was off. There was no vomiting, but considerable nausea for the first five hours after operation. There was also a desire to defecate several times during the first twenty-four hours after operation. The bowels moved on the third day for the first time. There was no subsequent diarrhea.

Case XXIII. — *Amputation of the upper arm.* Ether started by rectum. Complete anesthesia in fourteen minutes. Duration of etherization was fifty minutes. Amount of ether used was 6 oz.

Remarks: Patient was out of ether twenty minutes after ether off. No vomiting or diarrhea. The bowels moved on the fourth day after operation. The patient states that he had a desire to defecate during the administration of the ether until he lost consciousness, which was very disagreeable. There was no stage of excitement.

Case XXIV. — *Lacerated wound of nose, lip and face.* Ether started by rectum. The patient had no preparation. Completely etherized in sixteen minutes. Duration of etherization was thirty-eight minutes. Amount of ether used was 4 oz.

Remarks: The patient had only a large suds enema as preparation. Consciousness was not lost until ether had been given for twelve minutes, and even then the patient moved about for several minutes, which shows that the lack of preparation is an important element in the rapidity with which the ether is absorbed. The patient was out of ether fifteen minutes after ether off. The patient vomited once, several ounces of partially digested food eaten only a few hours previous to etherization. There was no further vomiting. The bowels moved on the second day. There was no abdominal pain.

Case XXV. — *Lipoma of the shoulder and neck.* Ether started by rectum. Completely etherized in eight minutes. Duration of etherization was thirty minutes. Amount of ether used was 6½ oz.

Remarks: The patient was out of ether twenty minutes after ether was off. The knee reflexes were present at this time. There was no vomiting. The bowels moved on the fourth day after operation by a cathartic. There was no stage of excitement although the patient was an alcoholic.

Case XXVI. — *Necrosis of the clavicle and sternum.* Ether started by rectum, complete etherization being obtained in ten minutes. Duration of etherization forty minutes. Amount of ether used was 5 oz.

Remarks: The patient was out of ether twenty minutes after the ether was taken off. The knee reflexes were present at that time. There was no vomiting or rectal disturbance. The bowels moved for the first time on the fourth day.

Case XXVII. — *Circumcision.* Ether started by rectum. Complete anesthesia in five minutes. Duration of etherization was fifteen minutes. Amount of ether used was 2 oz.

Remarks: The patient was completely out of ether thirty minutes after ether off. No vomiting or diarrhea. The bowels moved for the first time three days after operation.

Case XXVIII. — *Venereal warts.* Rectal ether was given for twelve minutes, the patient then being only drowsy. She struggled considerably and passed much fecal matter. Learning that the patient had not received the proper preparation, the rectal tube was withdrawn and ether was given by inhalation. Amount of ether used by rectum was 1½ oz. Amount by inhalation was 3 oz.

Remarks: The patient had abdominal discomfort for two hours after consciousness was regained which was thirty minutes after ether was taken off. There was no vomiting or diarrhea. The bowels moved for the first time three days after operation, The patient stated that she did not remember that she received any ether by mouth.

Case XXIX. — *Skin graft lower leg.* Ether started by mouth and maintained for fifteen minutes, the patient then being fully etherized. Amount of ether by mouth was 4 oz. About five minutes after ether by rectum had been started the patient became cyanosed and it was evident that she was not breathing. The ether was discontinued, such ether gas as was present in the gut was expelled by abdominal massage and artificial respiration and stimulation were resorted to. The patient made a good recovery.

Remarks: The patient was an old woman, seventy-four years of age, markedly sclerotic, and in whom the advisability of etherization by any method was questionable.

Case XXX. — *Chronic osteo-myelitis of femur.* Ether started by mouth and continued ten minutes, the patient then being in the stage of excitement. Amount of ether used by mouth was 4 oz. Ether maintained by rectum for thirty minutes. Amount of ether used by rectum was 3 oz.

Remarks: The patient became quiet in about two minutes after the rectal ether was started and passed quietly into complete narcosis. The patient did not recover consciousness until two hours after ether was taken off. There was no vomiting or diarrhea, although he had colicky pains off and on for two days after operation. The bowels moved for the first time three days after operation.

Case XXXI. — *Cellulitis of lower leg.* Ether started by rectum and maintained for twenty-five minutes. The amount of ether used was 4 oz.

Remarks: The patient was in acute delirium tremens at the time of operation. There was no preparation other than a suds edema just before going to the operating room. The ether was administered for fifteen minutes before the patient lost consciousness. Much feces was passed during the etherization, plugging the rectal tube and making the procedure difficult. The anesthesia was followed by slight abdominal pain for about two hours following the operation. There was no vomiting and the bowels moved for the first time two days after operation.

Case XXXII. — *Venereal warts.* Ether was started by rectum and maintained for ten minutes. The patient was then unconscious, but not sufficiently relaxed to be placed in the lithotomy position. Much feces was passed during the administration of the ether so it was discontinued and ether by mouth was substituted. Amount of ether by rectum was 3 oz. Duration of etherization by mouth was fifteen minutes. Amount of ether used was 3 oz.

Remarks: The patient regained consciousness one

hour after operation. There was no vomiting or diarrhea, the bowels moving on the third day for the first time.

Case XXXIII. — *Tubercular abscess of neck.* Ether started by mouth and maintained for twelve minutes, the patient then being in the stage of excitement. Amount of ether used by mouth, 4 oz. Rectal ether maintained for eight minutes, the patient then being fully etherized. Amount of ether used by rectum less than 1 oz.

Remarks: The patient regained consciousness in about twenty minutes. There was no vomiting or diarrhea. The bowels moved for the first time on the fourth day.

Case XXXIV. — *Dissection of both groins and Scarpa's triangles for chronic inflammatory glands.* Ether started by rectum and maintained for ten minutes. The patient was then semiconscious. Large amounts of feces were passed, plugging the rectal tube and making the procedure difficult. The cone was then substituted. Amount of ether used by rectum was 3 oz. Ether maintained by mouth for thirty-five minutes. Amount of ether used by mouth was 7½ oz.

Remarks: The patient was conscious one hour after operation. Vomited twice. No diarrhea. The bowels moved for the first time on the fourth day. The patient states that he had considerable pain during the first few minutes of the rectal etherization. Some abdominal distention was noted at this time.

Case XXXV. — *Skin graft of the lower leg.* Ether started by mouth and maintained for twenty-five minutes, the patient then being in the stage of excitement. Amount of ether used by mouth was 10 oz. Rectal ether was maintained for fifty minutes. The patient after rectal ether was started became quiet in about two minutes, anesthesia then being complete. Amount of ether used by rectum was 6 oz.

Remarks: The patient became conscious ten minutes after the ether was taken off. Vomited once forty minutes after operation. The bowels moved for the first time three days after operation.

Case XXXVI. — *Circumcision.* Ether started by rectum. Completely etherized in two minutes. Duration of etherization twenty-one minutes. Amount of ether used was 2 oz.

Remarks: There was no stage of excitement. The patient was conscious ten minutes after ether off. There was no vomiting or diarrhea.

Case XXXVII. — *Necrosis of both tibiæ.* Ether started by rectum and the patient was completely etherized in five minutes. Duration of etherization was twenty-five minutes. Amount of ether used was 5 oz.

Remarks: The patient was not properly prepared, the faeces plugging the rectal tube several times during the administration, necessitating its removal and its reinsertion. The patient vomited twice during the administration of the ether, mostly gastric mucus. There was no vomiting after the operation was completed. There was no diarrhea or rectal disturbance. The bowels moved for the first time two days after operation.

Case XXXVIII. — *Skin graft.* Ether started by mouth and maintained for twenty minutes, the patient then being in the stage of excitement. Amount of ether used was 8 oz. Duration of rectal etherization was forty minutes. Amount of ether used by rectum was 5 oz.

Remarks: After operation the patient vomited three times, mostly gastric mucus. This smelled strongly of ether. She regained consciousness twenty-five minutes after ether was taken off. Except for the faeces that followed the removal of the rectal tube there was no movement of the bowels for three days. There was slight abdominal discomfort for a few hours after the ether. The patient has taken ether several times and has on each occasion been very ill from it. She states that her recovery on this occasion was remarkably easy.

Case XXXIX. — *Fatty tumor of neck.* Ether started by rectum and maintained for thirty-five minutes. The patient was completely anesthetized in six minutes. There was no stage of excitement.

Remarks: The patient regained consciousness twenty minutes after ether off. No vomiting or diarrhea. The bowels moved for the first time four days after operation.

Case XL. — *Tubercular glands of neck.* Ether started by rectum and maintained forty-five minutes. The patient was completely etherized in eight minutes. There was no stage of excitement. Amount of ether used was 4 oz.

Remarks: The patient was conscious twenty minutes after ether off. No vomiting. There was no diarrhea or abdominal pain. The bowels moved for the first time four days after operation. There was no bronchial secretion.

Case XLI. — *Necrosis of the lower jaw.* Ether started and maintained by rectum for twenty-five minutes. The patient was completely etherized in six minutes. There was no stage of excitement. Amount of ether used was 4 oz.

Remarks: The patient regained consciousness fifteen minutes after ether off. There was no vomiting, diarrhea, or abdominal distress. The bowels moved for the first time three days after operation.

CONSIDERATION OF THE CASES.

There are in all 41 cases, 17 of which received ether by mouth preliminary to the rectal method, and 24 cases which were started by rectum.

The present series of cases, although small, is the largest which we have from which conclusions can be drawn regarding this method of ether administration.

Certain features are quite evident and deserve special consideration. It is the writer's desire to offer some scientific explanation of these various features which will serve to form a basis for further consideration when more experience will allow of deductions from a larger number of cases.

Briefly summarized, the points of interest are as follows: There is comparatively little ether used. There is no stage of excitement. Vomiting seldom occurs. Bronchial secretions are absent. There is a comparatively quick ether recovery. The bowels are slightly constipated. Unless the bowel is free from faeces it is difficult to produce narcosis.

Before considering these points in detail it is necessary to allude to the law of partial tension, upon which the physiology of ether narcosis is based.

The law of partial tension. — When ether or almost any other gas (excepting oxygen) is inhaled, it passes through the walls of the alveoli into the blood circulation until the blood circulation contains the same quantity of the gas as the air in the alveoli. When the percentage of the gas is decreased in the air of the alveoli by respiration, then the gas will pass back from the blood into the air in the alveoli until the air of the

alveoli contains the same percentage of the gas as the blood.

The physiology of ether narcosis by rectal administration. — There is no reason to believe that the law of partial tension holds true when ether is administered by the rectum, nor is there any known scientific explanation of the phenomenon of ether narcosis produced by this method of administration.

A theory advanced by Dr. M. Vejux-Tyrode of the Pharmacological Department of the Harvard Medical School, who was kind enough to study our cases, is briefly as follows:

First, a definite per cent of ether must be present in the entire circulation to produce complete surgical anesthesia. In human beings this amounts to a little under six volumes per cent. The rapidity with which complete narcosis results depends upon the rapidity with which the percentage of ether is brought up to nearly six volumes per cent. When ether is given by the lungs in the form of vapors it can only be administered in great dilution unless excretion be interfered with, and the percentage in the blood be raised above six volumes per cent, which would prove fatal by paralysis of the respiratory center in the medulla. On the other hand, when ether is administered by the rectum as a vapor, concentrated vapors may be given. Therefore, the chances for the rapidity of absorption and the raising of the required six volumes per cent will take place more rapidly while excretion may take place freely from the lungs.

This is an explanation for the rapidity with which certain of our cases have become anesthetized.

Fatality is less likely to result as the lung is free to eliminate ether as fast as it is absorbed from the rectum.

The fact that comparatively little ether is used in producing and maintaining anesthesia by the rectal method is evident when we realize that all the ether used is absorbed.

There is no stage of excitement, because of the rapidity with which the patient passes through the first stage of ether narcosis. We know, of course, that the absorption of ether at first depresses the co-ordination centers of the cerebrum, next the other parts of the cerebrum, consciousness and sensibility to pain, which takes place simultaneously with paralysis of the cord. This latter stage is that of surgical narcosis. The third stage, the undesirable one, is paralysis of the respiratory and vasomotor centers in the medulla. This does not seem to take place, probably because the lung acts as a safety-valve, preventing the raising of the amount of ether in the blood to six volumes per cent.

Vomiting has occurred in only three of the twenty-four patients receiving rectal ether alone, and in these cases the vomiting was small in amount, occurring once in two of the patients and twice in the remaining case. Of the seventeen patients who received ether by mouth, preliminary to the rectal method, twelve vomited considerably, and five did not vomit at all. The five cases which did not vomit were the patients who received but little ether by mouth.

There are two theories offered to explain the vomiting which usually follows ether narcosis. One, stimulation of the vomiting center, just as with apomorphine. The other, a reflex stimulation due to the local irritant action of the swallowed ether-laden saliva on the mucosa of the stomach.

Our experiments are rather in favor of the latter theory because we obviate to a considerable extent the swallowing of ether-laden saliva, and the cases etherized entirely by the rectal method failed in the great majority of cases to show vomiting as an after effect. If the former theory were true there is no reason to expect any difference in the amount of vomiting between the two methods of administration, as the same amount of ether must necessarily reach the central nervous system.

The increased amount of *secretions* by inhalation narcosis takes place from local irritation to the upper respiratory air passages. In rectal anesthesia only the necessary ether for narcosis which is excreted by the lungs goes through the respiratory tract, a quantity probably much less than goes through the respiratory passages during inhalation narcosis.

The rapid ether recovery seems to the writer to depend upon two separate factors, first, all the ether in the gut is removed at the time when the anesthetic is discontinued, leaving only that ether which is in the blood circulation to be eliminated. There is no remaining excess as there is in the alveoli. Secondly, the lung has not been impaired in its excretory power as it must be by the tidal flow of concentrated ether vapor in inhalation narcosis.

The fact that *the bowel is inclined to be constipated* may be explained simply by the fact that the bowel has been thoroughly cleaned out before operation and that subsequently the patient has been kept on a light diet. It may be due, however, to over-distention of the gut whereby the smooth muscle fibers of the intestine are made atonic.

The difficulty in producing narcosis in those patients with fecal matter in the rectum is dependent upon two factors. First, absorption cannot take place readily; and secondly, the fecal matter repeatedly plugs the lumen of the tube.

SERUM TREATMENT IN MULTIPLE INFECTIOUS ARTHRITIS.

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THE cases in regard to which these few observations were made are those of multiple arthritis, of probable infectious origin, some of which were treated by the injections of the anti-streptococcus serum. It is not intended that any definite conclusions are to be drawn from so few observations, but they are in relation to a subject about which little is known, and anything which possibly may throw light on it should be used, and taken for what it is worth. The observations

given in this communication are offered as clinical evidence only, but anything which has bearing on this subject is of value to help point out the way in which the future study of these cases may be pursued. Although clinical evidence is not as definite as pathological, yet the deductions gathered from it are often quite as valuable, and frequently precede pathological proofs, and are sometimes suggestive of the direction in which pathological investigation may follow, in order to explain results which are thus obtained.

The cases on which these observations were made are those of the multiple articular disease, which, from their probable etiology, may be called multiple infectious arthritis. The name is certainly imperfect, but it has the advantage of suggesting one's theory of their nature. The term "arthritis deformans" is descriptive of the clinical appearance of the condition in many of the cases, but is frequently lacking altogether in others. Still's description is probably the earliest and clearest of one of the severer types of this disease.

We know that many of these cases are the result of toxin irritation rather than direct bacillus infection. Some of the French observers, about 1897, called attention to the fact that many forms of multiple articular disease which were supposed to be tubercular, were not due to the direct action of the bacillus, but to the toxin secreted by them at a place remote from the joint lesion, such occurring in tuberculosis of the lungs, etc., when there are found articular complications, as well as in other forms of true tubercular joint disease. Whether or not the condition was at the time understood is doubtful, but it is interesting to note that the clinical manifestations were evidently recognized before the pathological and bacteriological processes were understood. These particular observations were directed mainly to the toxic manifestations of tuberculosis, but it was recognized that they were distinct in character from the usual and clearly marked joint tuberculosis, and to this condition was given the name, perhaps unfortunately, of "tubercular rheumatism," but it was applied to describe the clinical manifestation of a nonsuppurative form of what was supposed to be a multiple joint tuberculosis. This condition was recognized to be less severe and less destructive than the pure tubercular joint affections, and it is at this time interesting, when one considers the fact which has been long clinically recognized, but not understood, that cases showing what was supposed to be multiple joint tuberculosis, were less destructive, and much milder in their course, so much so, that it was usually said that cases of multiple tubercular joint disease did comparatively well, and the joints secondarily affected frequently made quicker and more complete recovery than the one first attacked.

With the results which are now obtained in serum therapy in many departments of medicine it is most natural to look for relief in this class of infective cases by this means. As to the origin in some form of infection, the long recognized association of joint complication with the distinct infective diseases, such as tonsilitis, scarlet fever, measles, diphtheria, etc., can leave no doubt, and the recent findings in cases of rheumatic conditions relative to this infective origin are strongly corroborative. The use of a serum without a definite idea as to the kind of organism is hypothetical, but in using anti-streptococcus serum on this class of cases it was not with the idea that these cases were necessarily from this form of infection. It may be that the antitoxin resulting from one form of bacteriological growth may in no way be hostile to growth of germs of other forms, and yet, on the other hand, our knowledge of the subject is hardly profound enough to insist that, at least clinically, the antitoxin of one form is not inhibitory upon the development of other forms, or at least of some forms of germ growth. It has repeatedly been noticed in the Children's Hospital, that cases suffering from joint disease are more apt to have a rise of temperature and constitutional disturbances from the antitoxin of dipthheria than other children, and it was noticed before beginning with these injections, that in one of the cases here reported, the use of the antitoxin of diphtheria was followed by marked constitutional disturbances and increased sensitiveness of joints. In using the anti-streptococcus serum one may assume one of two possibilities: First, that the different cases are frequently caused by the streptococcus or the closely allied bacilli and the antitoxin be given with the intent of direct action on allied organism; and, second, that the antitoxin resulting from one form of bacillus may be inhibitory to the growth of organisms of another variety. This may be visionary, but yet scarcely more so than many other theories that later have materialized.

These cases here reported have presented clinically the same conditions, *viz.*, the general characteristics as described by Still, in varying degrees of severity, but not all showing the glandular enlargement, which was considered by him as important.

CASE I.—Age, ten years. The condition resulted from or at least followed a septic arm from vaccination. Every indication points to this as a cause, as the child was previously well, healthy and strong, and the involvement of the joints appeared either in or soon after the convalescence from this condition. Both knees, ankles and wrists were affected with the usual symptoms of swelling, stiffness, impairment of use, sensitiveness, etc. The condition was progressive both in the involvement of the number of joints and the acuteness of the different joints. During a year and a half or two years all methods of local treatment were tried and these combined with general medical and special treatment, but in spite of all of these the condition was progressing. The serum injections were begun twelve months ago; 3 to 4 cc. given once to twice weekly. The reactions, shown by the constitutional symptoms, in the temperature, headaches and general malaise, were rather marked and lasted from twenty-four to forty-eight hours. Local disturbances at the place of the injection were at times present, but not troublesome. After two or three injections improvement was evident, at first noticed in the greater freedom

from pain and sensitiveness and later in diminution of the swelling. After four months the swelling in the different joints had practically disappeared. The stiffness was much diminished, but showed in the limitation in the extreme of motion and the inability for rapid movement. The permanent flexion of the knees, which in the beginning amounted to about 20°, was reduced to 10°. The general condition of the child was markedly improved.

Case II. — Adult. Multiple arthritis of the so-called rheumatic type. The majority of all joints of body affected; anchylosis of some of the smaller joints; marked deformity of the larger; great sensitiveness and pain. Duration of about two and one-half years. The case was subject to frequent attacks of exacerbations showing increase of sensitiveness and pain, swelling and greater sensitiveness, and at times constitutional symptoms. These had usually occurred every three or four weeks and lasted variable periods, and had been very persistent. The case was resistant to all forms of medication, diet, tonic treatment and local treatment. The serum was tried in this rather as a last resort, but the results were extremely satisfactory. Ten centimeters were given once or twice weekly for a period of four months. The reaction from the serum, either general or local, were slight, or none, but from the time of beginning of its use, the patient was free from the acute exacerbations, which had been a persistent feature; the general average of sensitiveness was much diminished; patient greatly improved in all general respects as well as in the improvement of sensitiveness. No change took place in the amount of motion or in the ability to help herself, except that which resulted from the lessened pain and sensitiveness. In this respect the comfort of the patient was very materially improved.

Case III. — Age, seven years. The immediate cause was not known. The condition, which had existed eight months, began with swelling of the knees, and later the ankles, elbows, wrists and fingers were affected. The condition had soon become very acute and remained so up to the time of beginning the treatment. At this time all the affected joints were sensitive, slightest motion painful, the child was obliged to have splints for fixation of the legs, and the daily care of the child was extremely difficult. Examination of blood for possible growth or organism gave negative results. During the eight months all treatment had failed to give any relief. There were enlarged glands and spleen. Three centimeters of the anti-streptococcus serum were given at first, but the reaction was so extreme that 2 cc. were given at the next trial and later 1 cc. The reaction was always very marked with the temperature 104° to 105°, decided constitutional disturbances, and in this case at times decided local manifestations, and twice it seemed as if abscess at point of injection threatened, but these local symptoms entirely disappeared at the end of four or five days. The result in this case was most satisfactory. After recovery from third injection, nurse remarked that it was much easier to care for child. After fourth, the splints were removed and the child was comfortable without them. In one month from first injection child was able to take a few steps alone without pain. The motion in all joints had increased, the wrists to nearly normal, knees 5° to 10°, but the remaining contraction of hamstrings, etc., prevented more complete straightening.

Case IV. — Age, ten years. Several years before, at the age of two or three years, had had tumor albus in left knee with recovery with motion. At the time when seen, right knee, both wrists and elbows and some of the fingers were involved. Swelling, limited motion, thickening, but no particular sensitiveness. The child had presented a mild grade of disease, with recovery from the acute stage. In this case injections were tried with 4 cc. once to twice weekly. There was no reaction except after one injection a rise of 1° in temperature, there was no local reaction, and the results were negative. In this case the blood was examined with negative findings, and the swellings over wrists were excised and found to be an inflammatory fibrous tissue over joints and around tendons.

It would be hasty to draw any definite conclusions from these few observations, but the facts as they are must be accepted. Apparently the effect of the use of the anti-streptococcus serum has been to cut short the acute stage, which usually lasts for a long time, many months at least, and gradually recovers with varying degrees of deformity and stiffness, dependent on the duration and the form of the disease. The problem of reducing the deformities and limbering such joints as are stiff from adhesions and contractions must then be met in these cases as well as in those which recover spontaneously after long periods, but the amount of damage is necessarily less if the period of the acute stage has been materially shortened.

The results obtained by these are as follows: In two of the cases the acute stage was shortened very markedly; in one other, which was much more extensive and subject to frequent and persistent exacerbations, these acute attacks were done away with and the general condition was very much improved. In the fourth, the injections, were given in the quiescent stage, and with no result. In these few cases the greater the reaction from the injection, the more rapid and more decided the improvement. It would seem that the time of election for the trial of such measures is the acute stage, when there is the marked sensitiveness, pain and progression of the disease, given only with the idea of cutting short this stage, so that the greater resulting deformity and stiffness be lessened, allowing the later treatment to be begun at an earlier period. It in no way does away with the work to be accomplished after the acute stage is over, and which is necessary in all cases which recover, but the general tonic treatment and local attention to the joints is just as important, or even more so, as in those cases which recover slowly.

The serum used in these was always the anti-streptococcus. The amount used varied from 1 to 10 cc. The upper part of the back or side of the thorax was chosen for the site of the injection, and the fluid placed subcutaneously, not deep. No bad general effects or local inflammation have resulted. The reactions have not been such as to cause anxiety, but the more pronounced have given rise to discomfort on the part of the patient.

In connection with the results obtained by this means the history of two of the reported cases of Still's disease is of interest and has more than likely a distinct bearing on this subject.

In these two cases, one by Still[1] and one by

[1] Med. Chir. Trans., vol. 80, p. 47.

Whitman [2], the patients are reported as recovered from the acute stage, after the attack of an exanthem. One of this series of cases has shown the same phenomenon. This case began by swelling and stiffness of ankles, later the symptoms appeared in one hip, which was acute and sensitive, and diagnosed at the time when first seen as hip disease. Later, the same symptoms appeared in opposite hip. Child presented at different times involvement of the ankles, hips, knees, and one elbow, which were all affected in the same way. The case was acute, requiring constant care; child at times showed temporary improvement by rest, tonic treatment and good care, but always soon relapsed. After a year and a half or two years of this course, and at a time when the condition was as severe as at any other period, the child contracted measles. From this time the acute symptoms entirely disappeared. It is now twelve months, and there has been no reappearance of the acute condition, and the condition much resembles other old cases which have been watched long, and which show the stiffness and thickening around joints remaining after the acute condition, and which gradually, under massage, tonic treatment, and measures directed toward improvement of motion, etc., have improved. During this period the stiffness in some of the affected joints has nearly disappeared, in others improved. The hips are still firm.

The question comes whether these cases get well, and is this treatment in any way curative? One can only answer, by looking at the series of cases for the results after some years. Out of ten in which the writer is able to complete the history, all have recovered with practically the same general course; the acute stage lasting a varying period, usually from two to three years, with then a gradual improvement so far as sensitiveness and pain and progression are concerned, leaving the deformity and stiffness. This, in some of the joints, disappears more or less quickly, in other joints very slowly, while in others permanent stiffness remains. The usual treatment directed to limbering joints fixed by adhesions and contractions is necessary to bring about the increased motion.

The ten cases which have been under observation present clinical manifestations so near alike as to offer little of interest in detail. The condition has been described too many times for repetition. The most frequently affected parts are knees, wrists and ankles; elbows, shoulders, and hips to a less extent. The duration of the acute stage varies from one and a half to three years, during which time the acute sensitiveness never disappears, but is subject to remissions, the exacerbations occurring most often without any apparent cause.

The most interesting factor is the apparent etiology. Two and perhaps a third seem to follow definitely upon an attack of grippe; two had followed septic arms after vaccination; one appeared three days after an acute middle ear; two after an abscess formation, apparently connected with bone, following an injury; two followed a local knee joint disease, one at a period distinctly remote from the beginning or acute onset, and in the other the invasion of other joints appearing at the time of the acute condition of the primary knee joint. In this latter, the knee joint did not bear out from the first quite the clinical picture of tubercular lesion, and although it was so considered for lack of better differentiation, the diagnosis was questioned from the first. This case became the most acute and most extensive of any observed. In three no cause could be assigned. It is perhaps not to be wondered at that since many of the cases can be traced to no source, it is natural to fall back on the theory of auto-infection, and the fact that these cases may be improved by general treatment of the digestive tract, either by the stomach cleansing or other means, or of the fact that any disturbance of digestion caused by prolonged worry and anxiety often result in exacerbations, would suffice to suggest that this theory of auto-infection is correct. It is interesting that clinically the cases from this source and those from the definite infection are alike in their clinical manifestations. It probably would be admitted that a case due to this cause shows greater tendency toward recurrent attacks and progression, as would be expected with a continued source of infection. On the other hand, there are other series of cases in which the apparent source of infection is much more definite and occurs with the clinical course much greater in severity and in acuteness, and which, on the other hand, does not tend to recur or to progress after the acute condition is over. This type has been seen in this series more in young subjects. Many of them have been watched over a number of years with a period of quiescence long enough and complete enough to feel assured that one is dealing merely with the results of an old process, and with no reasonable fear for its return.

We all know how interesting is the literature of to-day bearing on this subject. Observations with reference to the infectious nature of all these different forms of joints, so many of which have been classed under the broad head of rheumatism, should not be touched upon in this connection more than to give it mention. Among the most interesting observations most clearly related to these are those of Menzer, which have been published in Zeit. f. Klin. Med., Band 47, Heft. 1 and 2, in which he reports his results in the use of anti-streptococcus serum in rheumatic cases. In 47 cases the acute condition did not pass into the chronic, the course was shortened, none developed endocarditis, and the course was favorable. In 9 cases of acute which had passed into the chronic after four or five months, 7 were treated with success, and 2 improved. In 11 cases of the chronic, 5 were cured, 2 improved and 4 not improved. The serum by Tarel's method was used in some of the cases, and in others serum made by the observer himself. Experiments on animals with serum proved it to be harmless.

[2] Med. Rec., April 18, 1903.

Its use in other cases of streptococcus infection was favorable and which the author states goes to suggest that there is no specific micro-organism for rheumatism.

From these few observations which are offered to record the clinical evidence in this type of multiple arthritis may be drawn the following

CONCLUSIONS.

The use of the serum when effectual is apparently only to cut short the acute stage. It has no effect on the deformity or the stiffness of the joints, except to diminish that which is caused by the sensitiveness. The remaining deformity and limitation of motion are the results of the adhesions and contractions, and must be treated by the usual means employed to relieve this condition when existing from any cause after the inflammatory process has subsided.

THE COMMUNICABILITY OF CEREBRO-SPINAL MENINGITIS.

BY E. M. BUCKINGHAM, M.D., BOSTON,
Visiting Physician, Children's Hospital.

THE following communication may be of interest at the present time, and I hope that it will do something to enable physicians to remove causeless anxiety in families where cerebrospinal meningitis may exist. In the interest of scientific truth it is a contribution to the study of the means by which this disease is propagated, not, indeed, by pointing out how this happens, but by showing one way in which it does not happen. It has long been my opinion that useless precautions in any disease do harm by distracting attention from possible precautions of value. In the following observations there is nothing that will be surprising to those who have followed the literature of cerebrospinal meningitis, but, so far as I am aware, similar observations have not been published before on so large a scale. It has never seemed necessary to the staff of the Children's Hospital to recommend that cases of this disease be isolated. Notwithstanding this, no cases have ever originated in the hospital. Finding that my own recollection in this matter agrees with that of my colleague, Dr. Rotch, and that our united experience in the hospital covers much more than two thirds of the last eight years, I began the study with some system. Next, I learned from the acting superintendent that no case has originated, either among patients nurses or other members of the hospital population, although there has been a tolerably steady stream of admissions of cases of this disease, and although they have been treated in the open wards. No general directions have been given to nurses as to precautions with these patients, other than the general precautions always taken in a children's hospital. These may be summed up as absolute cleanliness and constant watchfulness for early symptoms of the well-known infectious diseases of childhood. Personally, I have been careful as to disinfection of hands, and of articles that may have become wet in cases of lumbar puncture, and I suppose that the same care has been exercised by my associates, and that we have all instructed our nurses to this effect.

Pains are taken with the following statistics to avoid classing as epidemic cerebrospinal meningitis, diseases more or less resembling it, but due to other organisms, as this would vitiate the whole argument. For instance, cases due to the pneumococcus are attempted to be classed as pneumoccoccus meningitis, and such cases, always rare, are excluded from consideration. Again, a number of cases appear in the record simply as meningitis. This could be due to doubt on the part of the attending physician as to the nature of the disease, or it could be due to carelessness on the part of the record taker. Such cases are excluded from consideration except where the record distinctly states that the diplococcus intracellularis was found. Statistics collected in this way probably understate and do not overstate the number of cases present. Again, question may rise as to the correctness of diagnosis. Without assuming that the attending staff is incapable of error, it is proper to state that very largely the attempt has been made to verify the clinical diagnosis by bacteriological examination of the living and by pathological examination of the dead. Bacteriological examinations were made in 1897 and later by Dr. Councilman or by those employed by him. They have since been made by other pathologists of the hospital, by one or more of the assistant physicians who had had bacteriological training and in some instances by house physicians. All these last have had bacteriological training in the Harvard Medical School. Some of them were submitted to a pass examination in bacteriology before being admitted to the competitive examination for appointment.

If the statistics so gathered are accepted they show the following: There were of cerebrospinal meningitis in 1897, 27 cases; 1898, 12; 1899, 14; 1900, 5; 1901, 12; 1902, 20; 1903, 14; 1904, 6; total admissions in eight years, 110 cases.

Of these one hundred and ten cases, sixteen were in the wards at one time filling about half the beds then allotted to the medical service of the hospital. I repeat that with this mingling of cerebrospinal meningitis with other cases in the open wards, beginning with their admission, and ending only with their recovery or death, not one single case has originated in the hospital among either patients or attendants of whatever grade. These statistics end with the first of January last, because they have to end somewhere. Other cases have been admitted since, but none have originated.

I submit that these observations mean something. They show that living in the same room and breathing the same air with patients ill with cerebrospinal meningitis is not of itself dangerous; that some other way of transmission must be sought.

It is conceivable that new conditions may, in the future, so alter the nature of the organism

that this conclusion will then no longer be true. It is true to-day. It cannot be vitiated by an observation or two made elsewhere. Whoever presents such contrary observations has on him the burden of proof that his infected person has not been careless after handling such patients, especially handling after autopsies, lumbar punctures or nasal feeding, or otherwise contaminating his hands with the secretions of patients.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

THE NEURONE THEORY.

BETHE [1] claims that the neurone theory asserts that, (1) the neurone is an embryological unit, arising from a single embryonic cell; (2) the neurone is an anatomical cell unit, even in adult life; (3) there are no nervous elements except the neurones; (4) the neurones are associated only by contact, the dendrites and axones having free endings; (5) the neurone cell is a trophic unit; and, (6) the neurone is a functional unit. In contradiction of these claims, Bethe maintains that in many of the lower animals the processes of the ganglion cells cannot be separated into dendrites and axones, but they form a net-work, and the nerve fibers going to the muscles do not arise from a single cell, but from the midst of fibers which connect two cells. Embryologically he claims that the peripheral nerve fibers do not grow into the periphery from the neuroblasts, as is believed, but are made up of a chain of cells. In the adult the axis cylinder is more easily broken at the nodes of Ranvier, and the axis cylinder is interrupted at each node; which suggests that each segment of the nerve is an anatomical unit, although the fibrillæ seem to pass from one segment to another. He concludes that the axis cylinder (nerve fiber) is a multicellular structure, connected with the ganglion cell at one end and with the muscular fiber or other structures at the other by the neurofibrillæ. These fibrillæ, furthermore, have been found by Apáthy and others to pass from one neurone to another. These fibrillæ are cell products, but not the cellular substance of the neurone. Even in the vertebrates it seems doubtful whether the axones and dendrites may not unite with a net-work of these fibrillæ. Waller's law of degeneration, that the fiber dies when separated from the cell and is restored by a new outgrowth from the cell, once the strongest pathological support of the neurone theory, is weakened by the claim that regeneration takes place in the peripheral end of the fiber. There is, moreover, some retrograde degeneration, as in the cell body itself after the nerve is cut, and this degeneration may extend to other neurones. Finally, the functional unity of the neurone is doubtful, since Bethe has found that reflex processes persist after destruction of the cell bodies. He concludes that the neurone is not a cellular unit, for embryology, histology and the facts of autogenous regeneration show at least that the axis cylinder of peripheral nerves is a multicellular body. It is very probable that there are other nerve elements, genetically independent, beside the neurone. In the nerve net-work the cells are connected by broad anastomoses, in which fibrillary connection has in some instances been proven. The neurones certainly exhibit neither a trophic nor a functional unity.

Lugaro, on the other hand, in a digest [2] of recent researches upon the neurone question, believes that the neurone theory still stands. Ramón y Cajal has shown by his new method that the neurofibrillæ never pass out from the neurone, do not pass beyond the dendrites and do not anastomose in the intercellular reticulum. Lugaro's own investigations on neurofibrillæ, by the method of Joris, have failed to convince him that there is any interneuronic continuity of the fibrillæ. The embryological theory of His that the nerve cell is the product of a single neuroblast and that the nerve fibre is the appendage of a single cell does seem to be disproved by the work of Bethe and van Gehuchten; but the proof of the regeneration of the separated portion of the nerve fiber is still inconclusive. It is argued that the regenerated fibers come from other healthy nerves in the neighborhood. Lugaro himself, after depriving the leg of all the other nerve supply, finally cut the sciatic, and was unable, two or three weeks later, to find any sign of regeneration in the divided end. His experiments, however, were limited in number. Lugaro concludes that to-day the cellular unity of the neurone may be questioned, but the cellular plurality is not yet proven. In any event, the neurone will keep its anatomical individuality as the elementary organ of the nervous system. If there were a continuity of neurofibrillæ passing from one neurone to another, it might destroy the notion of this anatomical individuality, but this is not demonstrated in vertebrates and is probably merely a special adaptation in invertebrates, so as to limit the anatomical individuality of the various neurones. The law of dynamic polarization, which assigns to the cell body and the dendrites receptive functions, and to the axone functions of discharge, remains undisturbed in its general lines, although there may be various modes of distribution of the internal energy of the neurone. In the domain of pathology the doctrine of the neurone is always valid, because, even if the nerve fiber is considered as a pluricellular organ, and consequently the neurone as a complex apparatus made up of a varying number of cells, there is in the adult organism a particular solidarity among these cells which constitute a unit of which the laws of Waller, Gudden and Nissl are various expressions.

[1] Deutsche med. Wochenschr., Aug. 11, 1904.

[2] Rivista di Patologia nervosa e mentale, Sept., 1904.

HEREDITY.

Hähnle [3] has made an interesting review of current opinion on the question of heredity in neuropathology and psychopathology. In regard to the question so vigorously denied by Weismann, whether purely acquired characteristics or diseases can be inherited, he finds that there is less difference between the two contending camps. Weismann's latest teaching is that changes in the germinal plasma alone can be inherited, which may arise from variability of the plasma, leading to new characteristics, or from external agencies which modify the development of the plasma. Injury of the germinal plasma is possible, according to Weismann, in the descendants of alcoholic subjects. This admits of injury to the plasma by the action of climate, manner of life, alcohol, syphilis and other constitutional diseases, but other injuries which affect only a part of the body and not its vital functions, as circumcision, do not affect the plasma and thus do not lead to hereditable conditions. If there are inherited pathological characteristics, which have been acquired in previous generations by external conditions of life, they may disappear, for if unfavorable conditions can harm the germinal plasma, favorable conditions may benefit it and restore it to the normal state. The "psychopathic disposition" may, therefore, disappear somewhat rapidly. In regard to the statistics bearing upon the importance of heredity, they are untrustworthy, and the connection between heredity and psychoses rests more upon opinion than upon figures. The disease itself is not inherited, as a rule, but only the "neuropsychopathic disposition," which serves as a germ plasma for all sorts of nervous and mental diseases, exhibiting various transformations and a variety of forms. Some claim that alcoholism in persons without this disposition does not lead to morbid consequences in their descendants; others think that there is no difference in this respect between the healthy and the predisposed. The percentage of hereditary taint among the insane varies very greatly with different observers, from 10% to 90%. In paranoia alone different observers have found from six to sixty per cent of heredity. The importance of heredity in general paralysis is also variously estimated. Meanwhile the frequency of neuropsychopathic heredity in healthy persons has rarely been investigated. Koller found such heredity in 59% of 370 mentally healthy persons, but no one has made similar studies. In epilepsy similar heredity is comparatively common, and alcoholism and syphilis in the parents are also of importance. The importance of heredity is also recognized in such conditions as Friedreich's ataxia, Huntington's chorea, neurotic muscular atrophy and congenital myotonia. Insanity and alcoholism seem to be the most important factors in morbid heredity, and hereditary influence has been found to be greatest in acute, and next greatest in chronic, psychoses. The influence of a neuropathic heredity is thought to be greater in women, and to be derived more frequently from the mother than from the father. The so-called stigmata of degeneracy, which have been multiplied so greatly of late, are losing their importance because it has been found that they are of such frequent occurrence in healthy persons. The old idea that a hereditary taint led inevitably to the degeneration of the family is erroneous, for in many instances there seems to be a regeneration, the morbid tendencies dying out and the offspring becoming normal. After reviewing the whole subject, Hähnle comes to the following conclusions: The main factor in many nervous and mental diseases, in about half the cases, is to be found in an inherited neuropsychopathic disposition. The inheritance of a morbid condition acquired during the life of the individual seems possible. We cannot at present express the etiological value of this inherited predisposition in figures, either in general or for individual diseases, or establish the laws of this inheritance. We cannot distinguish clinically in a given case between acquired disease and disease dependent upon heredity. An inherited tendency to mental and nervous diseases in a family may disappear under favorable conditions.

(*To be continued.*)

[3] Neurologisches Centralblatt, xxiii, 843, 882, Sept. 16; Oct. 1, 1904.

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

STATED MEETING HELD JAN. 31, FEB. 1 and 2, 1905.

(Continued from No. 15, p. 436.)

SECOND DAY.— (Continued.)

RAILWAY SPINE.

DR. EDWARD B. ANGELL of Rochester said that the use of this term was not any more definite now than it was when Erichsen wrote his classical article which has been the guide of legal and medical experts. We know little of the true morbid conditions that developed in these cases. In most cases it was a mental and not a bodily state that developed as the result of the accident, an accident neurosis. Very often the patient complained of pains, now here and now there, throughout the body without any definite pathological condition. Such symptoms were often found where there was no question of litigation or long after damages have been paid. A number of cases illustrating this point were cited. A true delusion developed in many of these cases. This delusion might be overcome by hypnosis or the suggestive effect of money damages. Railway spine was really a brain injury, though there might be a physical basis. Medical experts should be conscientious in giving testimony; it should be according to the reasons they are able to obtain for definite medical conclusions. At times the delusion becomes a permanent obsession and the patient a neurotic wreck.

DR. HENRY FLOOD of Elmira said he had had some experience with railway spine which he believed could be conveniently divided into four classes as follows: (1) Those cases in which there was an injury and where there was a change of organic nature; (2) those cases

in which there was a functional change; (3) malingering cases, although malingering, the individual had been really injured but he made a railway spine out of a very slight injury; (4) those cases that plan an injury for purposes of robbing the companies. Those cases which resulted in permanent changes in the spinal cord were exceedingly rare, although he believed they did occur. In the cases with functional changes there was the tendency to exaggerate things and this was quite a common class to meet with. Dr. Flood said he had never seen a single case where there was an organic change in the spine and he had met with hundreds of cases of railway spine.

DR. EDWARD B. ANGELL of Rochester said that it was a very difficult thing to say definitely whether there was a mental disorder or a diseased condition to deal with in railway spines. This was more and more impressed upon him with additional experience. With regard to the fourth class of patients referred to by Dr. Flood he said there seemed to be a decided weakness on the part of some people to plan some robbery of the companies, and this was more pronounced in the West than in the East. He referred to the case of a man in Missouri who went from one company to another simulating an injury and getting damages.

DR. B. O. KINNEAR of Clifton Springs said the paper was of particular interest to him because the symptoms of railway spine so closely simulated those of neurasthenia. Again for many years it had been stated that anything like profound shock, whether due to fright, fear or some other emotional condition, caused a powerful contraction of the blood vessels all over the body. In much the same way a powerful blow upon the spine might influence the nerve centers and cause the body to become cold all over; this forced the blood from the surface of the body into the internal structures and, naturally, to the brain and spinal cord. His own view of these cases was that there was a permanent dilatation of the blood vessels induced, especially those of the brain and spinal cord, by some powerful emotion, either a shock or a blow, or both; that there was quite a close connection between the dilatation of these blood vessels in the nerve centers and an active circulation; that in such cases there was increased function of the sensory nerve centers, as well as an increase in motor nerve center function; there followed an increased imagination and an active brain function, day and night. The sleeplessness was due to this dilatation of the blood vessels of the brain and to the active circulation; therefore, the brain became fagged in time.

THE RELATION OF PELVIC CONDITIONS TO NERVOUS DISORDERS.

DR. A. L. BEAHAN of Canandaigua said that various sclerotic conditions in the pelvis were often responsible for nervous disorders in women. Sclerosis of the appendix was frequent, and this chronic form of inflammation bore a definite relation to certain menstrual disturbances, owing to the vascular connection between the appendix and the uterine appendages. Sclerosis of ovarian tissue, thickening of the ovarian capsule, aborted ovulation, small cysts and rupture of these into the abdominal cavity with adhesions about the ovaries and tubes often fusing these together, may result in very definite effect upon the nervous system and would be considered when more obvious causes could not be found.

DR. EDWARD B. ANGELL of Rochester said it was so often difficult to discriminate between the subjective and objective symptoms and it was quite difficult to determine the relation, and how great such a relation was, between pelvic disturbances and the nervous phenomena.

DR. EDWARD D. FISHER of New York did not believe that there was such a frequency of pelvic conditions in women associated with nervous or mental diseases as generally supposed. Women, because of their sex, were subjected to many ailments. Sometimes a husband or members of a family report to him that a woman was complaining and fears were expressed that she would continue to suffer throughout her life, and, on examination, very little would be found of serious import so far as the pelvic organs were concerned. The psychological as well as the hygienic manner of treating these patients must be taken up.

DR. B. C. LOVELAND of Syracuse said that the majority of these women consulted the neurologist before seeing the gynecologist. He know of many women who had their uteri removed for the relief of nervous symptoms and without good result,.

DR. WILLIAM B. CLAPPER of Victor spoke of a widow who had been a source of annoyance to him for two years. She had no objective symptoms. Yet there seemed to be some sensitiveness in the region of the ovaries and she had pain at her menstrual periods. An operation was insisted upon, even though only exploratory, and was consented to. There were found ovaries not more than one quarter their normal size and sclerosed. Five weeks after she returned home and he saw her in the yard sawing wood. She had remained well ever since the operation.

DR. A. L. BEAHAN of Canandaigua said this was an open question and each man should settle it for himself. These questions should be considered not only after the gynecologist had passed upon them, but also after the patient had been operated upon.

(To be continued.)

Recent Literature.

The Elements of Kellgren's Manual Treatment. By EDGAR F. CYRIAX, M.D., Edinburgh, 1901; Gymnastic Director, Stockholm, 1899. One volume. 483 pages. New York: William Wood & Company. 1904.

This is an exposition of Henrik Kellgren's Medical Gymnastic Movements and their application to disease.

The treatment consists in active movements in which the patient exercises, either unaided by apparatus or with the support of stationary appliances; or passive movements in which the operator manipulates the patient, imitating active exercise. Under passive movements are included short sharp strokes of the hand or "hacking" and fine shaking of muscles or "vibration."

The movements and groups of movements are described at length and named by a somewhat complicated terminology, invented by Branting. Many of the exercises are illustrated by photographs. The writer indicates that it is "impossible for anyone to learn this treatment by reading descriptions of the movements" or "watching trained students execute them." They can be acquired only by several years of actual practice.

The results of treatment are illustrated by a series of ninety-eight patients on whom the manual treatment alone was used. This list includes among other cases, four of typhoid fever (one death); two of diphtheria (one death); twelve

of scarlet fever; two of epidemic cerebrospinal meningitis; fourteen of acute tonsilitis; two of appendicitis, both with palpable tumor; three of acute peritonitis (two deaths) five of croupous pneumonia; and five of "lymphangitis with commencing blood poisoning."

Typhoid fever and appendicitis were treated by abdominal vibrations; fluctuating abscesses by local vibrations without surgical interference; diphtheria by shakings and vibrations of the larynx, pharynx and trachea, with frictions over the nerves of these parts, without antitoxin; syphilis without medication, and leucorrhea by internal uterine vibrations.

Though gymnastic movements undoubtedly have their place in selected cases, their routine application to every disease, in utter disregard of any other treatment, is dangerous and must be condemned. If the author's methods were followed they would undoubtedly do much harm.

Manual of Gynecology. By D. BERRY HART, F.R.C.P.E., F.R.S.E., Lecture on Midwifery and Gynecology, School of the Royal Colleges, Edinburgh; Gynecologist to the Royal Infirmary, Edinburgh, etc., and A. H. FREELAND BARBOUR, M.A., B.Sc., M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Diseases of Women, School of the Royal Colleges, Edinburgh; Physician, Royal Maternity and Simpson Memorial Hospital, Edinburgh, etc. Sixth Edition, 736 pages, 371 illustrations. Chicago: W. T. Keener & Co. 1905.

This old-time favorite, the first edition was published twenty-three years ago, has been revised by the authors and brought into line with modern views in many important particulars. Comparing this sixth edition with the fourth edition, published in 1890, we find a large number of antiquated illustrations omitted and many new ones introduced. Free use has been made of the illustrations in Kilby's Operative Gynecology. The book is uneven, some of the chapters, such as that on chorio-epithelioma, being well written and up to date, while the treatment of exploration of the urethra and bladder is very scant and hardly does credit to the authors. It surely seems unnecessary to describe and figure digital exploration of the bladder in these days, and the same remark applies to the differentiation of the corpus luteum of pregnancy fromthe corpus luteum of menstruation and the differential diagnosis by symptoms between pelvic peritonitis and pelvic cellulitis. Other unsatisfactory portions of the book are the chapters on the operative treatment of retrodisplacements of the uterus, where the descriptions and illustrations of the various operative procedures are neither ample nor clear; and on atresia of the vagina and imperforate hymen, where the teaching is not modern. Placing a summary of the recent literature at the beginning of each chapter is to be commended, but we regret to note that a very large majority of the references are in the eighties or nineties. The typography and presswork are good.

A Handbook of Pathological Anatomy and Histology, with an Introductory Section on Post-Mortem Examinations, the Methods of Preserving and Examining Diseased Tissues. By FRANCIS DELAFIELD, M.D., LL.D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. MITCHELL PRUDDEN, M.D., LL.D., Professor of Pathology and Director of the Department of Pathology, College of Physicians and Surgeons, Columbia University, New York. Seventh edition. New York: William Wood & Co. 1904.

The alterations and additions have been so extensive that this is almost a new work. The present revision, as that of the preceding edition, has been wholly in the hands of Professor Prudden. There is a new section on immunity which contains a good statement of Ehrlich's side-chain hypothesis and an excellent summary of the results of recent researches in cytolysis. The entire work is admirable and in its new form is deserving of high praise. In our opinion it takes the foremost place among American pathologies, and is the best textbook for the elementary student. One of the most valuable features is the references in footnotes to the latest authorities. The lists of original articles and reviews have been carefully selected and deserved recognition has been given to the recent investigations of American pathologists. The student, with this book as his guide, will be stimulated and encouraged to consult the original sources. The text for the most part has been fully brought up to date. The volume contains some remarkably fine photographs of gross specimens.

A Manual of Experimental Physiology for Students of Medicine. By WINFIELD S. HALL, Ph.D., M.D., Professor of Physiology, Northwestern University Medical School. Philadelphia and New York: Lea Brothers & Co. 1904.

Physiology has only comparatively recently been taught in this country to medical students by laboratory methods. Professor Hall's Manual, however, is the result of ten years of accumulative experience in such teaching, and shows signs of that experience in its emphasis on the essentials for students of medicine. The experiments, which cover work on muscle and nerve, the circulation, blood, digestion, vision and the central nervous system, are so arranged as to involve a considerable amount of surgical work by the student and to permit the student to study at first hand the facts and methods of physiology which underlie the practice of medicine. One valuable exercise teaches the proper use of statistics. The questions following the experiments are stimulating, and serve to prevent the laboratory work from degenerating into thoughtless manipulation of apparatus.

A Textbook of Pathology for Practitioners and Students. By JOSEPH MACFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia Hospital and to the

Medico-Chirurgical Hospital. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This is a large volume of 764 pages. It is illustrated with 350 drawings and photographs, a fair proportion of which are original. It contains a great mass of well-classified facts. The arrangement of contents and method of presenting the subject is similar to that adopted in most of the textbooks used in this country. One of the best sections is that on the special pathology of the blood.

The author states in the preface that standard works on pathology have been freely consulted and drawn upon in its preparation. It is to be regretted that greater use was not made of the many original contributions which have so enriched the science of pathology during the past ten years. There are no references to the literature, but the names of investigators and special authorities are occasionally mentioned in the text. The book is provided with an excellent index.

Supplement.

MEDICAL RESEARCH, ITS PLACE IN THE UNIVERSITY MEDICAL SCHOOL.*

BY THEOBALD SMITH, A.M., M.D., BOSTON,
George Fabyan Professor of Comparative Pathology in the Harvard Medical School.

If there be one word which is heard most frequently in the most intelligent circles interested in professional education to-day, it is the word "research." In our own country in recent years medicine has fallen under its sway, and on all sides efforts are being made to meet its demands by the erection and equipment of costly laboratories within whose walls research may be carried on in a continuous and orderly manner.

Granted that the governing bodies of our great universities have familiarized themselves with the significance of this word and are giving it out, some only with the lips, others with a thorough conviction that to it must be accorded a permanent place in our higher institutions, the problem of how to deal with such a costly, and in many ways unattractive, offspring, how to correlate it with the teaching function, how to cultivate it side by side with the routine methods of instruction, will occupy a prominent place for years to come.

Research signifies effort directed toward the discovery of laws and principles through the systematic collection of new and the better correlation of existing data. It also means effort directed toward the more efficient and economical application of discoveries to the welfare of man; in other words, the utilization of latent and hitherto wasted energy. The aims of research are not culture, not miscellaneous information, not a mood of leisure meditation upon the origin of things, but mainly utility and service to mankind.

The chief influence at work in lifting medicine from a mere teaching to a research level is the same as that at work throughout the world of science and, in fact, in all intellectual fields. If we examine it more closely we find it akin to the breaking away from authority and dogmatism in religious affairs and from autocracy in the government of nations. Its foundations rest far down in the great liberalizing wave of the nineteenth century. We no longer believe that each step in advance is the ultimate one, but only one in a series toward ultimate truth, and this fact makes us realize that we must keep on marching. Research recognizes no immediate boundary to its activities, and no limit to its possible acquisitions. In placing only a temporary value upon its constructive plans and using theories only as aids to new facts, science grows in candor and modesty with its achievements.

In biology and medicine, the spirit of research takes into account the continual movement and flux in living things and their environment. It is a study of change, of transformation, brought about by conditions which which may or may not be under experimental control. We describe carefully and minutely, not for the sake of the picture and its details, but chiefly to be able to recognize the change. Unless we know the consecutive pictures how can we detect the movement and its trend? It is the moving picture of the kinetoscope that has gradually replaced the single view in repose.

But there is danger that we may move too rapidly and find our advanced positions untenable. The world is just now very optimistic and expectations run high. If we give way to the feverish haste of our day, the slow, sure advance of medical science may be brought into discredit. For it is one of the features of this feverish haste to leave the position held as soon as possible for one more advanced. We move away because we have some doubt as to the security and trustworthiness of our present position, and we hope to gain by pushing beyond it rather than strengthening it. As a result of this attitude we find the thing most characteristic of the day and age is the rapid remolding of our stock of information. Revolutionary views are uttered from an inadequate basis of observational and experimental data. Theories become kaleidoscopic in their variety. Old views long since discarded come to the surface like old fashions. All this change and ferment is both the cause and the effect of the inquiring attitude of mind. Research begets new data and the opposition to these begets new research. Thus the fermentation is kept up and a froth several years deep lies on the surface which few can penetrate.

This haste and hurry is part and parcel of what might be called nature's lavish waste of energy. The volume of our information increases more rapidly than our knowledge of the principles which underlie and support it. The progress actually made is more apparent than real. It is a swaying to and fro with but little forward movement. Like the driftwood of which the waves are endeavoring to unburden themselves, many excursions back and forth must be made before the fact is finally landed. It is often much battered and barely recognizable.

That there is here a golden mean to be followed need not be emphasized. The spirit of research should be properly tempered by a true insight into the relation of inquiry to the great accumulation of knowledge and the reserve forces stored in the every-day experience of mankind and handed down from generation to generation.

In the meantime the optimism of the world which unknowingly assumes that medical science can rise above natural law and correct any and all excesses of individuals and communities must be met by a better education in natural science rather than abandoned to the manipulations of the charlatans of physical and mental healing.

Passing now to the more obvious external conditions which have tended to stimulate medical research, we may single out a few which have been of special importance. Perhaps the most ancient and strongest of all is the desire in the human breast to maintain health and prolong life. From its very beginnings the healing art has been weighed down with the greatest of

* Address before the Harvard Medical Alumni Association of New York City, November 26, 1904.

problems, — to save life and to cure disease, often in those of lofty estate, and its status for the time being frequently depended on its success or failure in accomplishing apparently the impossible. In our own day the crumbling of the formal religious belief that this life is but a preparation for that beyond the grave, and the centering of our efforts to make it as much of a success as possible, the growth of wealth and leisure and the pursuit of sensual pleasure, — these various motives, high and low, combine to exert a pressure upon medicine which is scarcely equalled in other professions. To save life and to cure disease are imperative demands which grow more urgent, more impatient each year, and which suffice to quicken the efforts of the scientist and the true physician as well as the charlatan, and shape almost every problem which is considered worthy of attack to-day.

As a most important and timely contributory force to the advancement of medical research in recent years are the princely gifts of benefactors with whom we especially associate the names of Johns Hopkins, Garrett, Fabyan, Rockefeller, McCormack, Payne, Morgan, Huntingdon, Sears, Stillman, and many others, without whose aid medical research could hardly have commanded a corporal's squad to-day.

A factor not to be neglected in the advancement of medical science is the feeling of national pride. Most of the medical science of the past and much of the current knowledge has on it the mark "Made in Europe." To-day this mark is occasionally being replaced by the label "Made in America," and without doubt the home market will soon be well supplied. Fortunately, tariff barriers and trusts do not interrupt the currents of knowledge. Without hindrance we have filled our storehouses from the Old World, and I trust that we may repay in due time some of our huge indebtedness. Our national pride, once awakened, will see to it that our country, the wealthiest in material things, shall continue to give as well as to receive the fruits of the intellect.

These are forces acting chiefly from without. Perhaps the most important acting from within has been the use of animals. The study of the great domain of infectious diseases has revealed such a similarity between the diseases of man and the higher animals, that we hesitate now less than before to apply courageously the knowledge gained in our experiments upon the highest mammals to human physiology and pathology. Without this aid from animal life, medicine as a progressive experimental science would dwindle into insignificance. Moreover, the artificiality, the rigidity and awkwardness of the medicine of a generation ago have been largely dissipated by its contact with biology, which brought with it the comparative point of view.

Side by side with the use of animals we may place the convenient use of bacteria and other micro-organisms in our laboratories in producing disease as one of the great levers of pathological research to-day. They have enabled the investigator to establish important centers of research completely independent of and co-ordinate with those connected with the hospital and the dead-house. The former, it is true, still remains a final court of appeal for all discoveries destined for the relief and cure of human diseases.

In the historical development of science the research instinct appeared at first sporadically, and until recently it was simply the spontaneous flowering of the scholarly mind in the highest institutions of learning. To-day it has been actually organized, not so much to train youth as to produce useful knowledge. This new organization of research has been greatly favored by the promise of valuable returns in the suppression of infectious diseases of man and animals. Most of the institutions founded thus far were created by public authority for this purpose. It was realized that such work must be pushed forward rapidly to secure results of value to public health and economy.

About twenty-five years ago special laboratories began to appear. Our own government figured among the earliest in voting what were then very liberal appropriations for the study of infectious animal diseases. At the same time came the German Imperial Health Office, and somewhat later the Institute for Infectious Diseases in Berlin and the Pasteur Institute in Paris; more recently there have been established the Institute for Experimental Therapy in Frankfort, Germany, and the many sero-therapeutic institutes and public health laboratories, nearly all of which have become noted for their research work. In our own country we have, last but not least, the Rockefeller Institute for Medical Research of this city and the Memorial Institute for Infectious Diseases in Chicago. Most of these were created to deal scientifically with problems of immediately practical bearing. But it does not need a prophet to foresee that, following them, others will arise which will devote themselves to broader and more fundamental problems and which will attack those left unsolved by the former institutions. Of this latter class the Pasteur Institute in Paris and the Rockefeller Institute are conspicuous examples.

The founding of research institutes does not guarantee their success. That will depend upon the men who work in and for them. It has become evident that our research workers must have more diversified training than the older generation possesses. The store of knowledge accumulated by science must be made available to medicine. The only way in which this can be accomplished is to have trained men continually examining and testing this accumulating store of facts and applying them to the problems of disease. Such men should have medical training and approach their problems from the medical point of view; but to them should be spared the necessity of learning ultimate details of the medical art and they should give their energy to some sister study, be it morphology, physiology, chemistry or pathology. Medicine has just begun to realize the need of drawing to itself the great talent which hitherto has had an open door only to the pure and applied sciences. Research is largely dependent for its successful pursuit upon an attitude of the mind which insists on following a clew that promises to reveal some relationship, some law of causality between phenomena hitherto apparently unrelated. This type of mind has many of the attributes of the inventor who is attempting to combine to our advantage the forces of nature in new and unlooked-for ways and to express them in the form of labor-saving machines. In order to attract these minds we must pay them a living wage and provide workshop, tools and exercise but moderate restraint over their activities To them the exterior of practical medicine has a forbidding aspect. We must bring them to face its really wonderful problems through the portals of the laboratory.

After we have established research institutes and brought together a devoted, enthusiastic group of scientists we must look not too closely at the immediate practical value of research. Most of the epoch-making discoveries have had little, if any, direct influence on medical practice at the start, and even for some time after. Some have wholly failed to yield hoped-for results, but they have had great influence in unexpected directions. This is chiefly because great discoveries are, as a rule, not ripe for use. To point out a hitherto unrecognized cause does not thereby enable us to overcome its effects. These may be grounded in centuries of adaptation. A great discovery frequently does no more than call attention

to a new fact without defining its relationships. The discovery of the tubercle bacillus, for example, left the whole question of its complex relation to a given host untouched. The same may be said for most other microbes. The delicate equilibrium between parasite and host is the thing to be worked out before we can rationally proceed to upset it in our favor. There is, therefore, no need of hurrying to put discoveries to use. Many are discredited because of such ill-advised attempts, and the investigator himself becomes discouraged in the futile effort to apply principles which fit only in part the practical condition to be influenced.

The tendency to make research directly prove pet theories, find short cuts to health, and cure diseases hitherto unsuccessfully treated, will continue to give the investigator trouble for some time to come. What is needed is that at least a small number of scientists work at these problems of disease as we would at the other phenomena of the world around us. They should look them over from all sides, calmly and objectively, to get at the lessons expressed in them. They should look upon pathological manifestations as the normal sequences of causes operating under special conditions and for certain periods of time. They should endeavor to analyze phenomena rather than attempt to suppress or crush them. That function should belong to the health officer and the practicing physician.

In order to take this calm attitude toward disease as a natural phenomenon and attempt to explain it, it may be necessary to move backward toward simpler problems from man to the higher animals, from these to lower types, from the complex processes of the human machine to the physical and chemical phenomena of the inorganic world. This has not always been the attitude of medicine, for standing as it does, under the too near and impending shadow of suffering and death, it was but natural to attack the most difficult and complex problems first.

It is needless to say that the position of the research worker of the immediate future will not be an easy one. The strain to produce something is far more wearing than teaching. The mental play of the teacher's mind to produce something is relaxation compared with that of the investigator to carry out a contract for the delivery of new knowledge. The gap of years and even generations may yawn between the problem in hand and actual solution. It may indeed prove to be wholly impregnable from the point of attack. It may be solved by some obscure genius with slight facilities who happens to hit the combination which unlocks the secret.

We have all experienced the burden and complexity of growing information which has not reached the stage of actual knowledge. Extensive tables of figures are laboriously built up around it and the worker himself becomes encrusted and almost asphyxiated with methods and technicalities. We find the laboratory growing hot and stifling as we painfully add one more fact to the heavy burden. Suddenly and quite unexpectedly the true discoverer comes with a simple explanation. At his approach the air is cleared and freshened. Tables and figures are shoved to one side, and we begin our work once more with improved vision along another road.

Such is frequently the mission of the true discoverer, to leap over mounds of facts and figures, bring us back close to nature and show us that her movements are often far simpler than we dared imagine.

Thus far I have dealt with research as a thing by itself to be furthered by endowment and prosecuted by specially fitted men for the sake of its value to mankind. This is only preliminary, however, to the main thesis of our remarks, the training of research workers and the relation of research to the medical school. As a humble representative of the school which has provided so liberally in its new buildings for both research and instruction I must endeavor, amid the tangle of changing conditions, to place before you the relation between teaching and research as it presents itself to me.

I am quite inclined to make a sharp distinction between the physician and the investigator, and I think the time has come to create, as it were, a separate genus. What may be said of the type research worker should also apply to the teacher.[1] The attempt to set apart the teacher and investigator is simply another tributary of the current which is tending to make all teachers independent of the practice of medicine, by urging adequate compensation for their entire time.

Some enthusiasts would go so far as to urge that all students be made research workers. This is clearly uneconomical, for not many are fitted and the world has no use for many. There are needed chiefly well-educated, humane, upright and patient workers who are ready to do the routine tasks of their profession. The physician must keep step with the great procession as it slowly moves forward. He cannot deviate much to the right or to the left nor move much faster than the rest. His activities are more or less defined by a consensus of opinion. No matter how much he may swing his pinions in the laboratory, they will have but little room to move in the practical work of life. It is one thing to discover, and another to apply; one thing thoroughly to believe in our results, another to make others believe and act accordingly.

The research worker, on the other hand, deals more with the undefined boundaries of knowledge and with the frayed edges of sound information. He does not march with the procession, but he must do lonely outpost and scouting duties. He must seek clandestine meetings with those of other sciences, for he learns mainly by breaking through conventional barriers. He makes his discoveries unknown to others, and the farther they are in advance of the times the less attention they will receive.

Again, the physician under the stress of practical life must be positive and aggressive in his dealing with disease. He must supply empirically what is lacking rationally, and his experience is, therefore, of the greatest value, as it is in all vocations which couple science with actual life. The investigator, on the other hand, must be to a certain degree negative, skeptical of current theories, and suspicious of mere experience. He must frequently destroy before he builds up. He approaches the individual case of disease through general laws established through experiment. The physician must begin with his patients and through them reach general formulæ governing disease. He studies the patient, whereas the investigator studies the disease.

The investigator should be free to a certain degree to create his material and his problems. The physician must accept his cases as they come to him and he can only exercise the skill of selection. Each patient is indeed a problem, but it is worked out under the illumination of the accumulated knowledge of the world, and not dealt with according to strange and hitherto unknown formulæ. The physician cannot control his patient excepting within a narrow range. Experiment, as such, except when of a trivial nature, is forbidden by law and conscience. Statistics is the only court of appeal he has in attempting to prove success, and this method we know is open to serious error. On

[1] The time is not so distant when it will become necessary to separate the functions of teaching and research. The teacher will then investigate to improve his teaching, the investigator will teach to clarify the aims of research. One merges insensibly into the other.

account of his peculiar and unique life-work, the physician must build his education as broadly as possible and carry as much information as is compatible with normal thinking. The research worker, on the other hand, digs and delves and he must leave unnecessary encumbrances behind.

The main task of the medical schools will always be to train physicians. It does not fall within the scope of this address to define what this training should be, and I shall not attempt it, excepting in so far as it bears upon laboratory instruction. I believe that the medical school should make the future physician absorb as much as possible of the best medical science of the day and give him a certain initial skill and dexterity in carrying out the fundamental operations of the medical art. The power of the student to think independently, to digest the facts he has absorbed into some current theory which enables him to absorb more, and thus continually upbuild and rebuild his science, should be uninterruptedly stimulated by lectures, conferences and reading. To aid this constructive work laboratories have come quite generally into use. They are not research institutes at bottom, but originally a means to fix and illuminate through the senses facts otherwise meaningless. For the average student the laboratory is a review as well as a fixative of data which he is to carry with him and upon which he is to build his professional experience.

To those who are inclined to claim for the laboratory more than this in the education of the physician, I would ask to consider how little of medical science can actually be presented there to the student. Certain functions can be demonstrated in physiology, certain processes and products in chemistry, certain anatomical facts and certain parasites as etiological factors in pathology. The prolonged impact of untoward conditions, the silent movement from health to disease, the shadowy boundary between the two, who can adequately demonstrate them in the laboratory? There the days, months and years of disease processes must be concentrated into minutes and hours. Much of the laboratory work is like the ward visit, a fragment, to be pieced out through the agency of books, lectures and the imagination.

I am, of course, fully aware of the great importance of thoroughly training the senses and the powers of observation. The chief means of communication of the physician with his patient is through the medium of the senses, and the more avenues of intercourse are opened between him and the diseased body by increased delicacy of sense perceptions and by instruments of precision, which aid and control the sense impressions, the more precise the diagnosis.

Lest I be misunderstood, I wish to emphasize the importance of bringing the student who is to be the future practitioner in as close contact with laboratory research and its immediate fruits as possible. For he will be the one to apply new points of view gained experimentally, in the prevention and treatment of disease. Unless he gains some confidence in the laboratory and its methods and is ready to welcome its fruits, how can medicine make any progress? His own contact with the laboratory should be for him a strong support and create in him faith in the ultimate triumph of science over the problems and mysteries of disease. Its influence should reach far beyond his years of training. When in practice he is disturbed by the confusion of voices, which, like the will-o'-the-wisp, lead neither here nor there, or when he is perplexed by the movement of fads and fashions pointing now in one now in the diametrically opposite direction, when he comes to realize that much of his professional work is still empiricism and that it moves from precedent to precedent, — he will look back upon his best laboratory work with a feeling of relief and recognize in it the germs of the science of medicine where his results came true if he worked accurately, and where he could predict the outcome. This power to predict which characterizes science should stimulate the trained physician to urge on in every way his profession toward the scientific ideal. If the laboratory succeeds in creating a desire to aid in realizing in the student this ideal its work will be well done. This craving to place his profession on a more and more scientific basis will lead to steady intellectual growth and insight and a proper receptive attitude toward the progress of science.

Much confusion can be avoided, I think, by classifying laboratories into two categories: those that inculcate principles of medical science and those which subserve clinical diagnosis. In the latter, clinical medicine or medical practice seeks to lay hold of the acquisitions of experimental science and to utilize them in the interpretation of symptoms. The clinical or hospital laboratory approaches medical problems from the professional side and is thus an extension of medical practice into a territory where science and practice meet and shade into one another. Here the future physician should receive most careful training when he begins to direct his studies toward some branch of medicine. For this important stage the Harvard Medical School has left the fourth year open. In this year the student should utilize all possible means of combining his practical training with the more analytic methods of the laboratory, and exploit whatever it may offer in more accurate methods of making and recording observations. At the same time, we must not make the mistake of calling this research. It may later on shade into research, but it is at first simply increasing and perfecting the means of identifying already well-known disease processes.

We are just now passing through a period of reaction against so-called book learning which is likely to lead us too far in the other direction. So much weight has been placed upon the training of the senses that we are in danger of neglecting the mind behind them. It is vaguely assumed by some that laboratory work is *per se* research. This is far from the truth. We might with profit carry on researches in the published work of others without entering the laboratory. We might, on the other hand, spend our whole life in a laboratory without acquiring more than a little manual and optical dexterity. We are in danger of forgetting that the training of the observational powers is simply developing another language made necessary by the expansion of medicine as a biological science. The true investigator may have but imperfectly trained senses, but he may still succeed in discovering and opening up a new country to us. With his intellectual power to grasp and arrange data, largely worked out by others, perhaps, he finds his way through the unknown.

In our zeal to further the educational methods of the day, there is just as much danger that we overload the mind with too many sense impressions, as with too many facts gathered through the medium of books. Have we not heard of the absurd waste of time in some laboratories over work employing laboratory technic which is as empty as the written page to many a student? Have we not seen many a laboratory servant whose senses were sharper than ours on occasion; many a butcher who detected abnormalities of the tissues more quickly than we? Yet they were not doing research. Let us not deceive ourselves concerning the true inwardness of research. It does not consist in trained senses alone. It is a quality, an attitude of the intellect working through the senses. Claude Bernard clearly recognized this when he said: "He who does not know what he is looking for will not lay hold of what he has found when he gets it."

Though research may be carried on and is going on in all departments of medicine to-day, yet the true home of the investigator is the modern laboratory. Here we have a kind of reproduction in miniature of the actual field of work, where, by means of physical, chemical and biological methods of analysis, the problem in hand may be reduced to as simple terms as possible, or at least confined within more or less governable conditions. When it has reached a certain stage of maturity, then facilities should be at hand which enable the investigator to approach cautiously the very complex conditions of actual disease in the hospital and its special laboratories.

The university medical school has thus two duties to perform,—to train practical men, physicians and health officers, and to encourage the few who incline to research. The methods of training for both coincide for a large part of the course, but they must eventually diverge, the practical man to enter the actual field of conflict with disease and forge his weapons as well as he can from the storehouse of the world's accumulated experience and science, the investigator to continue his struggle with the stubborn and evasive facts of nature.

To carry out this program the university school must have teachers who are investigators, well-equipped laboratories both for large classes and for individual advanced workers. It must have satisfactory stables and operating-rooms for small and large animals; for the experimental and observational study of animal diseases is the logical outcome of laboratory research. It is another intermediate station on the way to human pathology. It frequently presents such strikingly clear solutions of difficult problems and permits us to introduce the comparative method which has been so fruitful in the biological sciences. Closely associated with the school should be hospitals and clinical laboratories. Let us look at a few of these requisites very briefly.

The training and encouragement of research as well as thorough teaching in our medical schools lead by implication to the doctrine that professors should be investigators themselves. For the purpose of elementary class work it may be maintained that it is enough for teachers to instruct with the aid of all the paraphernalia of the day. But what shall they teach? Shall they go no faster than the successive editions of textbooks allow, or shall they express an opinion about or actually teach the newest doctrines? As I stated before, the knowledge of the world is covered with the froth of research fermentation of several years' depth, and the latter yields about as much genuine knowledge as the froth does actual fluid. The teacher cannot well sound its depths unless he has made some independent studies of his own. Then he will be able to say something definite, whether he has been at work in this very field or not. His critical view will enable him to take sides and be positive rather than negative in his teaching.

It will no doubt be maintained by many that to teach undergraduates the latest information is out of place or at any rate not necessary. All that they need for their daily subsistence pertains to fundamental conceptions. But I answer that we really know little of fundamental conceptions and what we believe we know is being affected and modified by every new discovery of any value. It is of the utmost importance that the theories which the graduate takes with him be as sound and withal as fresh as the teacher can make them, for they will form the scaffolding of his thinking for some time to come, possibly for many years.

The teacher who is called upon to direct the work of students who are beginning to feel their way into unknown territory or who have already left the beaten path far behind, must of necessity be an investigator. Without going ahead of them himself his counsel is apt to be wavering, and at times he feels himself wholly helpless to advise. In other words, to direct research the teacher must be playing the chief part, while his students, of whatever rank, should take subordinate parts, all definitely working toward a given end. Only by such co-ordinated work can both the worker and the task become a success. The teacher's capacity for research is not necessarily measured by his productivity. This may be curtailed by his high standards of what should be put on record. At the same time his capacity for research should somehow make itself felt through those whose labors he is directing. His fruitfulness should be manifested through them. If a teacher remains sterile both in himself and his students, he has missed his vocation.

Of importance equal to that of an efficient body of teachers are adequate laboratory facilities both for teaching and research. Medical science has moved beyond that stage when a student could be kept profitably employed with a microscope and a box of slides. With the growth of laboratory methods of diagnosis, more varied and costly apparatus is needed, more space to place it and more laboratory service to guard it.

In research the demands are similar, but more exacting in certain directions. Some still believe that abundant space and work-room with cases full of the latest instruments will certainly lead to great discoveries. These are, to be sure, necessary; but without the motive power behind them they are more than barren; they create the debts rather than the assets of research. This motive power consists of enough assured income to carry on research and develop the research powers of meritorious students. There should also be ample means for laboratory service. Research is in one sense a business; the laboratory a workshop. Here all sorts of processes are under way, and as no one would expect a workshop to be carried on with only a foreman, so a laboratory cannot be kept in use without laboratory service. Hitherto, assistants have been made the motive power and the laborers; but this system should no longer be maintained. Not only is it wasteful to fill the time of assistants with routine manual labor, but it is wasteful in so far as the laboratory is dismembered at the end of each year. Every laboratory should be in working order even if all assistants are lacking. The trained laboratory servant should represent the routine and conservative, the assistants and investigators the progressive, element.

With the growth of the cost of research it becomes of great importance to exercise care and selection in admitting men to research positions. Fortunately, there are not many collateral attractions in a life of research, and the process of elimination acts, as a rule, automatically. Still there is danger just now that some of the flotsam and jetsam caught in an eddy, or else afraid of the current of practical life, may seek the quiet of the laboratory, because of some imagined taste or capacity which fails to materialize later on. It is far better not to have any research workers than poor ones.

The leaven of research which has so completely permeated and revolutionized all doctrines and practices of medicine in the past quarter-century is still acting, and no one can foretell how it is going to mold the medical science and practice of the coming decades. No one can foresee what it is going to do with the medical schools.

There will come, without doubt, much change in the artificial boundaries of the present so-called departments. Created for purposes of teaching and administration, they are a veritable bane to the investigator who cannot stop mining because his vein happens to

dip into another man's superficial territory. Even in the routine of teaching many changes are likely to come. I believe there will be developments in two main directions. The present laboratory studies, or propedeutics, will be deepened and extended in the direction of the more exact sciences, or toward the physical, chemical and biological work of the university proper. As a necessary result of this movement much of the work now done by these departments will move forward into clinical medicine and surgery, and there will be a corresponding growth and strengthening of the clinical and pathological laboratories of the hospitals. To illustrate: Much of what is taught to-day in pathology belongs to clinical medicine and surgery, for it is largely special and diagnostic in character. The pathologist is now the servant of the physician and surgeon in completing and rectifying their diagnoses. The pathologist of the future will deal with more general phenomena derived from experimental and comparative data, just as the physiologist has moved onward, or backward if you please, into general and comparative physiology. Similarly, the burden of other now scientific departments will be shifted into the more practical branches to make way for more fundamental problems. The logical outcome of such a re-arrangement of studies would be eventually a college course arranged wholly with a view toward medicine and sanitary science, in which the bulk of the present early studies of the medical school would find a place, and, secondly, a practical course in medicine, surgery and sanitary science, in which clinical, hospital and public health laboratories would take a prominent part. It may be that in this way the time and energy of the student aiming for two degrees and a livelihood could be saved, while the efficiency and scope of the course could be increased at the same time.

The establishment of research institutes by governmental authority and private munificence marked the beginning of a new epoch in medical science by organizing research and giving it an assured status. The influence of these institutes upon research in the university medical schools will be watched with much interest. Unless the latter take a more definite position and furnish opportunity whereby investigations of a more serious and exhaustive scope may be undertaken, the research institutes will absorb the best men and the highest class of work and leave research, as heretofore, a by-product of the schools, often desultory, discontinuous and trivial. To avoid this impending calamity, the professors should be relieved of various routine duties incidental to the management of laboratory workshops. There should also be appointed investigators of definite rank whose teaching should be subordinated to research in such a way that the latter will not be seriously impaired by long interruptions.

In conclusion, I wish to dwell briefly upon a phase of our subject which is, perhaps, the most important of all and toward which the various lines of our discourse have been converging.

The relatively large endowments given to medical education and research in recent years have created, as it were, a trust to be administered by the medical profession in the interest of human society in the broadest and highest significance of the term. This I interpret to mean that we must endeavor to make all advance in our knowledge of health and disease common property so far as this may be possible, to disseminate broadcast the benefits of research into the laws of health, so that they may enter into and form an integral part of the life of the individual and the community. We all know that much of the daily work of the physician goes to charity, that the public health authorities and sanitary officers are but scantily compensated for their arduous and often dangerous labors. They can be no question that as a profession medicine stands at the head in disinterested service; but there is still room for improving the relation between medicine and the public. How can this be done?

Perhaps, next to the education of physicians of the highest standards, the immediate duty of the university medical school is the development through research of preventive medicine and sanitary science and the education of sanitary officers. This, it seems to me, is the best way in which our debt to society can be discharged, for it is the way through which medicine has moved during the past quarter-century to its present commanding position; it is, in fact, the way of least resistance for the human race to evade or mitigate the penalty incidental to advancing civilization. Preventive medicine is the application of medical science to the mass as well as to the individual. It attempts to arrest disease before its momentum has carried it beyond the means of help. It is the truly modern as contrasted with the medieval point of view.

Nobody will deny that much has already been done in the development of preventive medicine and sanitary science. It will be claimed, and with justice, that more has been done than the public is willing and prepared to accept and live up to. We know that to-day municipalities continue to permit the unnecessary sacrifice of lives to epidemic disease, that politics is permitted to disorganize efficient boards of health in large and small communities and to put the best material interests of family and social life into untrained hands. We know that the public continues, in spite of warnings, to consume noxious drugs, widely and boldly advertised in the daily press. These difficulties are very real, but they should not discourage us. The medical profession is in a sense to blame for this condition; for the household remedies and cures of to-day are those of the doctor of a generation ago, and the medical practice of to-day will crop out in the daily life of the next generation. Likewise, the indifference of the physician and health officer of a generation ago is reflected to-day in the attitude of the mass of the people.

The university medical school has here a great function to perform, for it is the legitimate source of knowledge pertaining to hygiene and sanitation. There are few problems which have not been suggested by contact with disease. Sanitary science is broad and rests upon many foundations, and the means of disseminating its teachings are many, but its origin is in pathology. Without the stimulus of the continual presence of disease its problems may become trivial and its practice ineffective.

The university medical school may, in still another way, hasten the diffusion of sounder views concerning health and disease by creating more interest among the educated in the general problems of pathology. This is but the obverse of physiology, and its principles, once scientifically founded and objectively developed along general and comparative lines, should form an attractive study in all biological laboratories. We are still some distance from the relization of this suggestion. but the task is worthy of the best men in our best schools.

If we take this broad view of the work of the university medical school and try to put it into effect, medical science will come out of its somewhat isolated position and take its proper place beside the other sciences. The work of the physician will then be rated more justly, because the great complexity of the problem of health and disease will be more appreciated. His services will then be sought more frequently before, rather than during the calamity of illness, because it will be better understood why he can more easily forestall and prevent than cure disease.

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SURGICAL SHOCK AND COLLAPSE.

THE subject this year of the Hunterian Lectures, delivered before the Royal College of Surgeons of England, by Mr. J. P. Lockhart Mummery, was "The Physiology and Treatment of Surgical Shock and Collapse." Surgical shock is defined as a condition produced by exhaustion of the vasomotor centers and the resulting fall in blood pressure, and collapse is a similar condition caused by hemorrhage or paralysis of the vasomotor centers. The anesthetic is regarded as an important element in the causation of the shock, and the opinion is expressed that the C. E. mixture, and ether are safer anesthetics than chlorolorm. As regards treatment, stimulants, and especially strychnia, are absolutely contra-indicated, since they tend rather to increase than to diminish the condition for which they are administered. On the other hand, compression of the abdomen, either manually or by means of a tight abdominal binder, is an extremely effective method of treating shock in all cases. A further development of this idea is the establishment of an artificial peripheral resistance by the application of external pneumatic pressure, a method which Crile has worked out in this country in detail, but which as yet has hardly proved practical. Intravenous infusion of salt solution is disappointing in that its effect is fleeting, but the introduction of saline solution into the abdominal cavity following an abdominal operation is a good method of combating shock. The administration of adrenalin, hemisine and ergot promises much in the future since the experimental evidence of its efficiency is apparently established, although its clinical trial is as yet undeveloped.

As a means of preventing shock cocainization of large nerve trunks is strongly advocated. Morphine should be used more freely than it has been in the past, and a blood pressure chart should be kept during severe operations in order that treatment may be given promptly if required. We quote Mr. Mummery's method of treatment as follows:

I believe the best line of treatment in the event of shock occurring or threatening during an operation to be as follows: If the operation is an abdominal one the peritoneal cavity should be filled before being closed with physiological salt solution, and if a severe degree of shock is already present hemisine or adrenalin should be added to this solution in the proportion of 1 in 40,000. Whether the operation be an abdominal one or not a firm, tight abdominal binder should be applied at the end of the operation, and in bad cases the limbs should be firmly bandaged from the extremities upwards in addition. When the patient has been put back to bed the foot of the bed should be raised at least 12 inches on blocks and all pillows should be removed from beneath the head; the patient should be kept warm and some good form of nutrient enema should be administered and repeated in a short time. No stimulants should be given. A hypodermic injection of aseptic ergot should be given at the earliest sign of shock and repeated if any improvement in pulse tension follows its administration. Except where absolutely contra-indicated an injection of morphine should be given at the end of the operation, whether pain be present or not; and if there is any restlessness afterwards the morphine should be repeated. If, in spite of these measures, the blood pressure remains low and the patient continues in a dangerous condition of shock a solution of adrenalin in physiological salt solution in the proportion of 1 in 20,000 should be intravenously infused at a rate of about three to five cubic centimeters per minute. The intravenous infusion should be continued until on stopping it the blood pressure is found to remain at a safe level. In bad cases it may be necessary to continue the infusion of adrenalin for a long period, but it affords a certain method of maintaining the patient's blood pressure and therefore his life.

In collapse following severe hemorrhage intravenous infusion with physiological salt solution should be performed as soon as possible. The amount of fluid introduced into the veins should be as nearly as possible equal to the amount of blood lost. The subsequent treatment should be the same as for shock. In all forms of sudden collapse, including the collapse of chloroform poisoning, the intravenous administration of adrenalin is of immense value in assisting to restore the patient's life. This drug, by raising artificially the blood pressure, allows the heart and the vital nerve centers to resume their functions very easily. It should prove of great value in resuscitating drowned persons and in other similar emergencies.

One of the most significant advances which have been made in the general domain of surgery within the past few years is the study and attention which has been given to this question of surgical shock. It is apparent that much of the treatment in the past has been empirical in character and possibly, at times, harmful in its results. The experimental method has rendered possible the theoretical solution of many of the questions at issue, and it remains now to apply the knowledge so gained to practical medicine. When this is completely done, the surgeon will approach his patients with much greater confidence in the outcome and with a minimum of anxiety regarding the effect of his operative procedures.

THE LIBRARY MEDICAL MEETINGS.

As is, perhaps, generally known, a systematic attempt has been made in Boston this winter to infuse new life and energy into its medical meetings. The meetings have been held under the auspices of the Medical Library in conjunction with the Suffolk District Branch of The Massachusetts Medical Society, and have been under the immediate charge of a committee of three composed of Drs. G. W. Gay, F. B. Lund and E. P. Joslin. The energy of this committee, combined with the active co-operation of the profession in and about Boston, has led to a series of medical meetings which, in point of attendance and general interest aroused, have surpassed any hitherto held in the city, with the possible exception of such occasional gatherings as those represented by the annual meeting of The Massachusetts Medical Society. The attendance at these meetings has been most gratifying, and has been remarkable in that it has brought together men practicing in various outlying regions, as well as those near at hand in the city proper. The number in attendance at any one meeting has never fallen below one hundred in the thirteen meetings held, and has twice exceeded two hundred, the largest number being at the meeting of January 11, at which the subject of medical charity was discussed.

The success of these meetings evidently depends upon several factors, which it is well to consider in the years to come, if they are to be maintained at the high standard set this year. In the first place, a few men have taken a personal and active interest in the success of the meetings. This has no doubt required much work and a considerable expenditure of time on their part, and this must always be the case if medical meetings are to appeal to the rank and file of the profession. As a direct consequence of this interest, subjects have been chosen which are in the forefront of discussion and which are of vital interest to practitioners in all branches of medicine. Those chosen to read papers and take part in the discussion of the main papers have always been peculiarly qualified by experience for the task. This has naturally led to an authoritative statement of opinion on many topics now more or less in dispute. In general, it has been definitely shown that medical men are quite willing to come to medical meetings, provided a well chosen program is offered and carefully prepared papers are read. The paucity of general discussion is somewhat to be regretted in these large meetings, but this no doubt is more than compensated for by the systematic presentation of a general subject in concise form.

We have no question that a like success will attend meetings in the future provided the same general methods are carried out as have been successfully employed during this last winter. This means, as we have already suggested, the devotion of a few men to the preparation of the meetings, careful choice of topics, and of men to discuss these topics who are able to present the gist of their ideas in concise form. Any relaxation on the part of those who have the meetings in charge will undoubtedly lead to the apathy which has, heretofore, too often characterized our medical gatherings. This, we trust, may be avoided in view of the excellent example set by this year's committee and the results of their efforts.

MEDICAL NOTES.

Meeting of the American Society of Clinical Surgery. — The American Society of Clinical Surgery meets in this city Friday and Saturday of this week. The meetings are to be held in part at the Massachusetts General Hospital and in part at the City Hospital, and, as the name of the society implies, the program is designed to be practical in character.

Report of the Ohio Hospital for Epileptics. — The fourteenth annual report of the Ohio Hospital for Epileptics shows that an increased amount of scientific work has been accomplished, largely through the equipment and opening of a new laboratory. There have been autopsies of sixty cases. On the clinical side the history of cases has been amplified and the records filed for ready reference. In general, this institution shows the progress which is everywhere being made in the treatment of epilepsy.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, April 19, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 16, typhoid fever 3, measles 14, tuberculosis 50, smallpox 0.

The death-rate of the reported deaths for the week ending April 19, 1905, was 18.43.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 15, 1905, was 235, against 204 the corresponding week of last year, showing an increase of 31 deaths, and making the death-rate for the week 19.95. Of this number 119 were males and 116 were females; 230 were white and 5 colored; 138 were born in the United States, 92 in foreign countries, and 5 unknown; 53 were of American parentage, 153 of foreign parentage, and 29 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 26 cases and 4 deaths; scarlatina, 23 cases and no deaths; typhoid fever, 3 cases and 1 death; measles, 13 cases and 2 deaths; tuberculosis, 38 cases and 23 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 39, whooping cough, none, heart disease 30, bronchitis 6, and marasmus 6. There were 15 deaths from violent causes. The number of children who died under one year was 38; the number under five years 55. The number of persons who died over sixty years of age was 64. The deaths in public institutions were 79.

There were 9 cases and 5 deaths reported during the week from cerebrospinal meningitis. Two of the deaths occurred in hospitals to which the patients were brought from suburban towns.

A CENTENARIAN.. — Ellen T. Quinn, reputed to be one hundred and four years old, died in Haverhill, Mass., April 13.

REPORT OF THE BOSTON LYING-IN HOSPITAL. — According to the recently published report of the Boston Lying-in Hospital, the total number of patients has exceeded that of any previous year, being 2,651, an excess of 132 over the preceding year. The number of internes at the hospital and at the South End Branch has been increased so that now four students are on service at each place.

CONVALESCENT HOME FOR SURGICAL TUBERCULOUS PATIENTS. — The need of a home for surgical tuberculous patients in this vicinity is manifest. The present convalescent homes are not able to afford the requisite care for these cases, since it is impossible, in justice to other patients, to keep them sufficiently long under observation for definite and permanent benefit to result. The attempt is to be made this summer to demonstrate the utility of a home where such patients may be treated. To this end it is proposed to rent a tract of land near the city, to buy a portable house for administrative purposes and two or three tents for the housing of patients, exclusive of pulmonary cases. It is hoped that this plan will demonstrate the necessity of providing a permanent place of some sort for the treatment of adult surgical tuberculous patients.

NEW YORK.

ERROR IN DIAGNOSIS OF MENINGITIS. — On April 9 a young girl, thirteen years old, believed to be suffering from cerebrospinal meningitis, was admitted to Bellevue Hospital in a state of coma. She died the following day, and the autopsy showed that the trouble was not meningitis, but miliary tuberculosis of the intestine. The examination was made by Dr. J. E. Welch of Bellevue and Dr. Schultze, coroner's physician, in the presence of Dr. W. M. Polk and other members of the Health Department's cerebrospinal meningitis commission, and the opinion was expressed that if autopsies were more generally made in the case of those supposed to have died from meningitis, it would be found in a considerable proportion of instances that death was due to some other cause than this.

MORTALITY IN MARCH. — The weekly reports of the Health Department show that the mortality in the city during the month of March represented an annual death-rate of 20.55 as against 20.26 in February and 23.64 in March, 1904. Among the diseases in which there was an increased fatility were the following: The weekly average of deaths from epidemic cerebrospinal meningitis increased from 37.5 in February to 91 in March; the weekly average from scarlet fever, from 15.75 to 19.5; from measles, from 6 to 12.25; from bronchopneumonia, from 102.25 to 108.5; from pulmonary tuberculosis, from 174 to 187.75; from diarrheal diseases, from 36.5 to 46.25; from diarrheals under two years of age, from 30.25 to 39.25; from cancer, from 49.75 to 57.75; and from organic heart diseases, from 112.25 to 114. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from diphtheria and croup de-

creased from 45.75 to 31.75; from influenza, from 15.5 to 13; and from pneumonia, from 172 to 142.-25. In March there was one death from smallpox, as against four in February, the largest number of deaths from the disease in any one month for a very long period. The corrected death-rate for the month, excluding non-residents and infants under one week old, was 19.55.

THE CHILDREN'S VILLAGE. — On April 16, there were held the formal farewell services at the New York Juvenile Asylum, marking the change from a congregate institution of "The Children's Village," with its cottage homes and gardens, at Dobbs Ferry, on the Hudson. The tract of land purchased at the new location comprises three hundred acres, and the work there will be inaugurated with fifteen completed cottages capable of housing twenty children each in home-like surroundings and under the care of a "house-mother." More cottages will be built from time to time as the necessary funds are provided. During the fifty-four years since it was founded, in 1851, no less than 39,000 neglected children have been cared for by the asylum.

Miscellany.

CEREBROSPINAL MENINGITIS.

THE Connecticut State Board of Health issues the following statement, dated April 15, with regard to cerebrospinal meningitis:

"This disease was first described as epidemic in Geneva, in 1805, and appeared in 1806 in Medfield, Mass. This well illustrates its migratory character, — from one continent to another in a year. In a sporadic form it sometimes remains endemic for several successive years in a region and then will wholly disappear for a period of years. In epidemic form it is very erratic. It suddenly terrifies a community in widely separated places which have no recognizable relationship; in cities generally, mostly though not exclusively, in unhygienic localities. It rarely attacks infants or the aged. It is an infectious disease. It is a germ disease, and the germ has been arrested, accused, tried and convicted. It is a communicable disease. Whether or not contagious, is the most urgent question of the people. It is the prevalent opinion of the best authorities that it is not contagious, although a few think it may be very rarely and feebly so. It does not, like contagious maladies, extend from case to case, or follow lines of travel and traffic. It has been a peculiar characteristic of all epidemics that a good majority of the cases have been one case only from a single house. Where victims have been in the presence of other cases, the interval between such exposure and the time of attack has varied from a few hours to several weeks. While it is believed to be communicable, the manner of its communication has thus far baffled all investigation. The numerous theories are sufficient evidence of its uncertainty.

"Being epidemic in a community, the influence which determines its manifestation in houses widely separated has not yet been discovered, nor why it so often attacks one member of a family and spares all the others. The most active investigations are being pursued.

"*Protective measures.* — Our knowledge of this disease being so limited, we can only be guided by such facts as we have. The disease is located primarily in the brain and spinal cord, in two bony cavities from which there is no natural outlet. Therefore it is not possible, in acute cases, rapidly fatal, for the germ to escape to infect others. Such cases reasonably cannot be contagious. But when the disease is protracted and involves the ear, the nose, or the lungs, as it does sometimes, it is equally reasonable that the discharges from these passages will contain the infection. Therefore, all these discharges should be thoroughly and *absolutely* disinfected, as well as everything else with which they may have come in contact. Why? Because *they* are contagious.

"These germs are of feeble vitality, and the best authorities do not believe the infection can be transmitted in clothing or other things; hence quarantining of houses and inmates is not thought necessary.

"Ninety-five cases were reported in the state, of which 51 were in New Haven and 10 in other towns of New Haven County. The remaining 34 cases were scattered in five other counties and in ten different towns.

"The epidemic in New Haven is now subsiding, as usual, with the approach of warm weather."

INFLUENCE OF THE FILTRATION OF POTABLE WATER ON THE DEATH-RATE OF TYPHOID FEVER.

DR. JOSEPH D. CRAIG of Albany read a paper before the Albany Medical Society [1] on the above subject, in which he considers that he offers sufficient proof "to show the marked influence the introduction of filtered river water has had in diminishing both the typhoid cases and typhoid deaths in Albany, since the use of such water began in November, 1899. An average of 285 cases of typhoid fever per year for the years 1890, 1891, 1892, and an average of 489 cases a year for the four years preceding the introduction of filtered water falls to an average of 109 reported cases for the four years following such introduction. A typhoid death-rate of 2.3% to total deaths for the years 1890, 1891, 1892 becomes 95% for the years 1901, 1902, 1903. If statistics prove anything, this abstract from the records shows conclusively the efficacy of the Albany filter plant in protecting the people of Albany from the ravages of typhoid fever." And yet Philadelphia is still scourged!

[1] Albany Medical Annals, August, 1904.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 8, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York . .	3,908,644	1,522	443	28.34	17.32	1.76	.85	.72
Chicago . . .	1,990,750	—	—	—	—	—	—	—
Philadelphia .	1,407,988	503	126	25.83	13.81	3.17	4.56	.40
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	223	59	19.73	25.11	.45	.45	1.34
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,377	—	—	—	—	—	—	—
Milwaukee . .	325,960	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	74	15	18.91	20.26	2.70	—	—
Boston . . .	617,950	232	53	23.84	17.67	2.15	1.29	3.01
Worcester . .	136,925	34	13	8.82	11.76	—	—	2.94
Fall River . .	119,349	44	19	15.90	20.45	—	—	—
Lowell . . .	104,402	36	13	25.00	16.67	—	—	11.00
Cambridge . .	100,998	26	6	19.23	15.38	3.84	—	—
Lynn	78,875	22	7	4.54	22.72	—	—	4.54
Lawrence . .	72,348	36	10	36.10	11.10	2.78	—	11.10
Springfield .	73,020	21	—	9.52	—	4.76	—	—
Somerville .	70,413	17	3	17.64	23.59	—	—	—
New Bedford	68,863	27	12	11.11	18.51	—	—	—
Holyoke . .	60,538	19	8	15.79	31.58	—	5.26	—
Brockton . .	46,661	7	1	—	—	—	—	—
Newton . . .	39,310	10	1	—	10.00	—	—	—
Haverhill . .	39,061	14	4	21.42	21.42	—	7.14	7.14
Malden . . .	37,305	7	—	14.30	42.90	—	—	—
Salem	37,188	16	6	—	—	—	—	—
Chelsea . . .	36,499	15	3	13.33	—	—	—	—
Pittsburg . .	36,325	8	2	—	37.50	—	—	—
Taunton . . .	34,577	17	5	17.64	17.64	5.88	—	—
Everett . . .	30,309	7	1	71.50	—	14.30	—	—
North Adams .	29,201	6	2	—	—	—	—	—
Quincy . . .	26,798	8	2	25.00	37.50	—	—	—
Gloucester . .	26,121	4	1	—	—	—	—	—
Waltham . .	25,797	8	2	—	50.00	—	—	—
Brookline . .	23,576	—	—	—	—	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	—	—
Medford . .	21,956	9	2	11.11	—	—	—	—
Chicopee . .	21,692	4	1	—	25.00	—	—	—
Northampton	20,314	5	0	—	—	—	—	—
Beverly . . .	15,807	7	1	14.30	28.60	14.30	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	7	1	—	28.60	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	2	0	100.00	—	—	—	50.00
Hyde Park . .	14,500	2	0	—	—	—	—	—
Newburyport	14,478	3	0	—	—	—	—	—
Woburn . . .	14,315	3	—	33.33	—	—	—	—
Melrose . . .	13,819	2	0	50.00	—	—	—	—
Westfield . .	13,809	9	2	22.22	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	9	0	33.33	—	—	—	—
Revere . . .	13,609	3	1	—	—	—	—	—
Framingham	13,974	7	1	28.60	—	—	—	—
Peabody . . .	13,406	—	—	—	—	—	—	—
Gardiner . .	13,324	—	—	—	—	—	—	—
Southbridge .	11,716	7	2	85.80	—	28.60	—	42.90
Watertown .	11,575	2	0	—	—	—	—	—
Weymouth . .	11,350	4	0	—	25.00	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,048; under five years of age, 828; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 760; acute lung diseases 521, consumption 365, scarlet fever 15, whooping cough 19, cerebrospinal meningitis 137, smallpox —, erysipelas 10, puerperal fever 16, measles 18, typhoid fever 43, diarrheal diseases 69, diphtheria and croup 58.

From whooping cough, New York 14, Philadelphia 5. From scarlet fever, New York 7, Philadelphia 3, Baltimore 1, Providence 1, Boston 2, Cambridge 1. From cerebrospinal meningitis, New York 110, Philadelphia 2, Baltimore 3, Boston 7, Lowell 4, Lawrence 4, Southbridge 3, Worcester, Lynn, Haverhill and Attleboro 1 each. From erysipelas, New York 8, Boston 1, Worcester 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending April 1, 1905, the death-rate was 15.7. Deaths reported 4,711; acute diseases of the respiratory organs (London) 119, whooping cough 106, diphtheria 51, measles 214, smallpox 2, scarlet fever 33.

The death-rate ranged from 6.8 in Handsworth to 27.5 in Merthyr Tydfil; London 15.1, West Ham 17.5, Brighton 14.8, Southampton 19.5, Plymouth 14.8, Bristol 17.3, Birmingham 15.8, Leicester 12.8, Nottingham 20.3, Birkenhead 13.9, Liverpool 17.3, Wigan 24.7, Bolton 15.5, Manchester 17.9, Salford 14.0, Halifax 17.8, Bradford 14.7, Leeds 12.7, Hull 13.3, Sheffield 16.7, Newcastle-on-Tyne 19.7, Cardiff 12.2, Rhondda 17.1, Smethwick 15.0, Wallasey 12.5.

METEOROLOGICAL RECORD.

For the week ending April 8, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	Weather* 8.00 A.M.	Weather* 8.00 P.M.	Rainfall in inches.
S.. 2	30.19	36	43	30	33	40	36	N	W	N	W	28	14	C.	C.	0
M.. 3	30.04	44	56	31	35	26	30	N	W	N	W	13	9	C.	C.	0
T.. 4	29.96	43	47	39	56	67	62	N	E	S	E	4	6	R.	R.	0
W.. 5	29.90	41	44	38	98	96	97	N	E	N	E	8	9	O.	R.	.06
T.. 6	29.46	48	57	38	100	65	82	S		W		3	15	R.	C.	.44
F.. 7	29.68	42	50	35	56	49	52	W		W		7	9	C.	C.	.38
S.. 8	29.77	42	48	36	51	46	48	W		W		11	9	O.	C.	0
Sum	29.86		49	35			58									.88

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Sum Means for week.

SOCIETY NOTICES.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.—The one hundred and seventh annual meeting of the Medical and Chirurgical Faculty of Maryland will be held at Baltimore April 25, 26 and 27, 1905. Dr. William Osler will deliver the annual oration, after which will be a presentation of his portrait.

AMERICAN OTOLOGICAL SOCIETY.—The thirty-eighth annual meeting of the American Otological Society will be held at the Boston Medical Library, Tuesday and Wednesday, May 9 and 10, 1905.

FREDERICK L. JACK, *Secretary.*

RECENT DEATHS.

DR. JULIEN TAINTOR WILLIAMS, who was editor of the Dunkirk (N. Y.) *Evening Observer*, died from apoplexy on April 10. He was born in 1829 and was the oldest native of Dunkirk.

DR. J. WADSWORTH PERRY, of Englewood, N. J., died on April 10.

BOOKS AND PAMPHLETS RECEIVED.

Practical Manual of Diseases of Women and Uterine Therapeutics for Students and Practitioners. By H. MacNaughton-Jones, M.D., M.Ch. Ninth Edition. Illustrated. New York: William Wood & Company. 1905.

Malignant Disease of the Larynx (Carcinoma and Sarcoma). By Philip R. W. De Santi, F.R.C.S. New York: William Wood & Company. 1905.

Guide to the Examination of the Throat, Nose and Ear for Senior Students and Junior Practitioners. By William Lamb, M.D.C.M. Edin., M.R.C.P. Lond. Illustrated. New York: William Wood & Company. 1905.

Department of the Interior. Bureau of Government Laboratory. Biological Laboratory. Protective Inoculation Against Asiatic Cholera. (An Experimental Study.) By Richard P. Strong, M.D. Manila. 1904.

Practical Pediatrics. A manual of the Medical and Surgical Diseases of Infancy and Childhood. By Dr. E. Graetzer. Authorized translation, with numerous Additions and Notes, by Herman B. Sheffield, M.D. Philadelphia: F. A. Davis Company. 1905.

Eye, Ear, Nose and Throat Nursing. By A. Edward Davis, A.M., M.D., and Beaman Douglas, M.D. Illustrated. Philadelphia: F. A. Davis Company. 1905.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, N. Y. Vol. ix. For the Collegiate Year 1903–1904. Reprint.

Treatment of Aphasia by Training. By Charles K. Mills, M.D. Reprint.

Original Articles.

STRICTURE OF THE RECTUM: A PLASTIC OPERATION FOR THE RELIEF OF CERTAIN VARIETIES.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,
Assistant Visiting Surgeon, Boston City Hospital; Instructor in Surgery, Harvard Medical School.

A STRICTURE of the rectum is a narrowing of its lumen consequent on changes in the wall. It may be congenital or acquired; the former type is rare and the latter uncommon.

Location. — The terminal portion of the intestinal tract is the anal canal. It varies from 1½ to 2 inches in length. It is kept closed, except during the act of defecation, by two sphincter muscles. The lining of the lower portion of this canal is skin and that of the upper portion mucous membrane. Inserting into the external sphincter muscle is the levator ani muscle, and in close proximity are different layers of fascia. The vicinity is rich in blood vessels. The portion of intestine next above the anal canal is the rectum proper; its structure resembles more or less that of the rest of the intestine and its chief function is that of a reservoir. By far the larger proportion of strictures of the rectum are in the vicinity of the junction of the rectum and anal canal and, consequently, within two and one-half inches of the anus.

Etiology. — From an etiological point of view strictures may be classed as *congenital*, *neoplastic* and *inflammatory*. The character of the first two types is obvious. Strictures of an inflammatory type may be due to different exciting causes, all of which tend to produce the same result, namely, a proliferation of connective tissue which narrows the lumen of the intestinal tract. Only the inflammatory strictures will be considered.

Strictures of inflammatory origin presuppose a trauma of some sort, so as to produce a mode of entrance for micro-organisms of one or more varieties. The function of this region exposes it to trauma. Its mucous membrane could be injured during the passage of feces or by the presence of foreign bodies of any sort which may have entered the rectum from above or from below. Inflammatory processes may arise directly in the mucous membrane and extend to deeper structures of the intestine, as in dysentery, proctitis, etc. The tissues composing the wall of the anal canal are subjected to considerable motion and often undue stretching, as well as being the frequent site of surgical operation for one cause or another. Injuries and diseases in neighboring organs may extend to the rectum, causing lesions of an inflammatory nature. In this connection are to be noted suppurative processes in the female pelvic organs and the complications which may follow labor, also venereal disease in both sexes. Diseases about the anal canal, such as abscesses and fistulæ, may be the forerunner of changes resulting in stricture. The exciting cause may be the invasion of some specific organism, such as that of tuberculosis or syphilis.

The various inflammatory diseases above noted may give rise to stricture, all acting in more or less the same way, that is, all producing scar tissue by the proliferation of young connective tissue and young blood vessels. The majority of strictures are preceded by ulcers which may, or may not, heal eventually, but occasionally the proliferation takes place underneath the mucous membrane, in the walls of the tract, without ulcer.

The location, extent and form of the resulting cicatrix varies. It is usually at the junction of the rectum and anal canal; it may cause complete obstruction, but generally the closure is only partial, although sufficient to be serious as to prognosis if untreated. A tubular stricture is one in which a considerable length of the tract is narrowed; an annular stricture is one whose depth is very moderate and which presents the appearance of a diaphragm across the lumen of the tract. This is the usual form of the inflammatory type of stricture. In addition to the scar tissue, secondary ulceration is common at the edges and on the rectal side of the stricture.

Symptoms and Signs. — The progress of these cases may be divided into two stages: (1) ulcerative, (2) obstructive.

At the very onset there may be a latent period during which it is impossible to observe any symptoms or signs. The first recognizable symptoms are those resulting from ulceration, such as pain and tenderness and the appearance of mucus, pus and blood in the stools. These may persist throughout the progress of stricture formation, but generally they attract little or no attention until the signs of obstruction set in.

Usually a patient does not seek medical advice until the obstructive stage has been reached. Questioning will then elicit the following: A gradual, increasing constipation relieved by increasing doses of cathartics and more active enemata until even these fail to accomplish the desired result. Longer periods without stool follow. Signs due to ulcer are generally present, namely, pain and the appearance of streaks of blood in the stool. As the lumen becomes narrowed the obstruction is greater and only liquid feces pass. If the stricture is low the size and shape of the stool may be affected, but not otherwise. A diarrhea may be present, the result of ulceration and of a proctitis set up by the irritation of hardened feces above the stricture, and yet the condition be one of obstruction. If obstruction becomes complete it is due to impaction and not directly to the stricture. Efforts on the part of the patient to overcome the obstruction give rise to further symptoms. The bowel above the stricture becomes dilated and straining may occasionally cause prolapse of the rectum. Hemorrhoids may appear. The sphincters may become less efficient. The anus may be patulous, fissured, and the site of a trouble, some pruritus. Ischio-rectal abscess, fistula and ulcer may be present. According to the completeness of the obstruction there will be general constitutional changes, such as loss of weight, anemia, indigestion, abdominal distention with dilatation of

colon, stercoremia and reflex nervous symptoms. In extreme cases, the signs of acute intestinal obstruction will be present.

The *diagnosis* will be confirmed by supplementing the history with a local digital and instrumental examination. Strictures within reach of the finger can be discovered readily and this group will include the greater number. The various rectal specula will be of service for the purpose of inspection. The deeper strictures can be discovered by means of the proctoscope. Probes and bougies-à-boule will enable the examiner to ascertain the morphology of the stricture.

The *prognosis* as to cure is unfavorable except in very simple cases; as to relief, the chances are good, but it is generally necessary to keep the patient under observation and continued treatment for a long time. If left untreated some cases would terminate fatally as a result of intestinal obstruction. Other cases die because of complications secondary to operation.

Treatment. — The indications for and advantages of the different methods of treatment will be only very briefly considered. Treatment should be directed toward the reduction of the amount of inflammation, the healing of ulcers and the enlargement of the constricted part of the bowel. There are palliative and operative measures.

Palliative treatment. — As the diameter of the stricture diminishes it will be necessary to keep the stools of softer consistency. This can be accomplished by means of diet, laxatives and enemata. Any harmful habits of the patient should be given up. Rest in bed may lessen the degree of inflammation if rendered acute by any error. The iodide of potassium should be administered in suspected syphilis. The general hygienic and dietetic care of the patient should be regulated. Sedatives may be required to alleviate pain. The caliber may be maintained by the use of rectal bougies.

Operative treatment. — There are various operations for the treatment of stricture of the rectum, the choice of which will depend upon the type of stricture. They may be classified as: *dilatation*, *proctotomy*, *excision*, *entero-anastomosis*, *colostomy* and *proctoplasty*.

Dilatation. — Dilatation may be performed at one operation (divulsion), or may be accomplished by the introduction of instruments from time to time (gradual dilatation). Divulsion is attended with risk of rupture of the bowel with the possibility of serious hemorrhage or infection. The disadvantages of divulsion outweigh the benefits and only in exceptional cases should it be used. Gradual dilatation is safe, often most satisfactory, and will be found useful either as the only mode required or in conjunction with some more radical method of treatment. It is the most frequently used of all methods. Dilatation is accomplished by the passage of bougies, carefully selected as to shape, material and size, passed at intervals according to the particular case. A patient's occupation need not necessarily be interfered with during treatment. The caliber of the stricture may be so increased in many cases as to cause the disappearance of practically all the symptoms, but the treatment generally has to be continued for a long and indefinite period. After cases have been operated by radical methods the caliber can he maintained only by the occasional passage of bougies.

Proctotomy. — Proctotomy consists in incising the stricture partially or completely; it may be done through the rectum (internal proctotomy), or from without (external proctotomy). Proctotomy is the commoner of the more radical measures and is particularly efficient in annular strictures. The internal operation is simple and consists in making one or more vertical incisions through the stricture. There is danger of hemorrhage and infection so that this method should be reserved for strictures on the lower two and a half inches of the canal. Recurrence is the rule, hence the necessity of subsequent prolonged treatment with bougies. Internal proctotomy is not severe. External proctotomy is performed generally by the posterior route and includes the division of the stricture, often with the sphincter muscles. It affords free drainage and easy control of hemorrhage without risk to life. It is moderately efficient, but the control of the bowels is often sacrificed, and the wound heals slowly. Recurrence is the rule so that dilators are necessary.

Excision. — Excision consists in the complete removal of the stricture. The operation is attended with rather high mortality, and recurrence in the operation wound is the rule. It is a better operation for malignant cases. Low strictures may be reached by the perineal route; all are accessible posteriorly, the operation being practically a modified Kraske. Fistulæ are frequent complications.

Entero-anastomosis. — If the stricture is high in the rectum an anastomosis may be made between the sigmoid and rectum. This would be efficient, but such an opportunity rarely presents itself because the strictures are situated so low.

Colostomy. — This is a measure of last resort, particularly in inoperable malignant disease, and in an occasional benignant case where immediate relief must be had from intestinal obstruction. It may be the best method for certain extensive tubular strictures.

Proctoplasty. — This consists in making one or more vertical incisions through the stricture and closing the wound horizontally. The operation is more or less limited to cases of low annular stricture uncomplicated by ulceration or induration. The writer has discovered, subsequent to operation on the case here reported, two cases in the literature. Williams of Melbourne did practically an internal proctotomy and closed the wound horizontally. It was reported too early to determine the question of recurrence. Schwartz (Presse Medicale, 1894) performed a proctotomy through a posterior vertical incision, closing the rectal wound in a similar fashion.

There can be no doubt from the review of all benignant cases of stricture of the rectum that

there is no perfectly satisfactory method of treatment. The type varies so much that there can be no universal method; in other words, the surgeon must decide what is best for the individual case. All cases tend to progress and, if operated, to recur; hence neglect in every instance is apt to be serious.

The following case is an example of one suitable for rectoplasty, which was performed with a technic differing from any previously published, so far as is known to the writer.

Mrs. D. entered the Boston City Hospital on Nov. 23, 1903, in the service of Dr. Bolles. She was a woman fifty-three years old, well developed and well nourished. Her family history is negative with the exception that her mother died of carcinoma of the stomach.

Previous history: She has had the usual children's diseases and has suffered from minor conditions which are unimportant in this history. The first trouble which might have had any bearing on her subsequent condition was the presence of an ischio-rectal abscess twenty years ago. This abscess was of considerable size but, instead of coming to the surface so as to rupture, the collection of pus was gradually absorbed and there was no surgical intervention. She attributes her present trouble to a sickness which began twelve years ago. At that time, while at stool, she suffered from sudden, severe pain in the rectum. She thought that "something was torn." For the next few days there was blood and mucus at stool with pain and tenderness. Ever since that time she has suffered from an increasing degree of constipation. She resorted to cathartics of different kinds, the doses of which have been increased from time to time. At intervals, defecation was attended with pain and the occasional appearance of streaks of blood and mucus. For the last five years defecation has always been attended with much difficulty. In order for her to have any movements she has had to resort to enemata to liquefy feces. Whenever, for any reason, she has had an attack of diarrhea she has felt more comfortable. At times the abdomen has been distended and she has suffered more local discomfort at the time of her periods. There has been some loss of weight; the appetite has remained good. Her general health is beginning to be impaired. There is no venereal history. She has had five children, the last pregnancy being fourteen years ago. Labors have been easy and completed without the use of instruments.

Physical examination: Patient appears to be in fairly good general health and is not emaciated nor anemic. The general physical examination is negative. The abdomen is not prominent and the abdominal wall is soft. There is no tenderness over any abdominal organ nor are any coils of intestine visible through the abdominal wall. Inspection shows the anus and the skin in the vicinity to be normal. There are no dilated veins nor hypertrophied tissue. The anal canal is normal. Both sphincter muscles offer the usual degree of resistance to the examining finger. About two inches above the entrance to the anal canal the finger meets a resisting membrane stretched horizontally across the lower portion of the rectum. This resisting mass is smooth, firm, not tender, does not bleed, and feels like cicatricial tissue. In front of its center a depression can be felt too small to engage the finger tip but it will admit a No. 18 French, metal bougie-à-boule, the passage of which through this depression leading to a small opening in the rectum causes slight hemorrhage. There is no deeper resistance to the passage of this instrument. By vagina there can be felt a small mass in the rectum at the point of bowel constriction. The perineum is moderately lacerated and the uterus somewhat enlarged, but not displaced. The pelvic organs are practically normal. There is moderate leucorrhea due to a slight degree of chronic endometritis. There are no scars in the vicinity of the anus or anal canal except that due to lacerated perineum. There are no urinary symptoms or signs. The formed feces are never larger than a lead pencil.

From the history and examination it was obvious that we had to deal with a stricture of the rectum situated just above the junction of the rectum and the anal canal. The cause of its formation could not be definitely determined. It appeared to be of the annular type and it had advanced so as to leave a very small lumen. So far as could be determined it was of inflammatory origin. There were no signs of malignant disease. It appeared to be a moderately thin, horizontal mass of dense cicatricial tissue with slight ulceration at its narrow lumen. It was thought that a plastic operation could be done for the relief of patient which would offer some hope of a permanent cure.

Operation: For several days the patient was given liquid diet without milk, and cathartics were administered so as to get the bowels in as nearly empty a condition as possible. At time of operation the vagina and anal canal were rendered as aseptic as was possible, relying chiefly therefor upon the use of soap and water and gentle mechanical cleansing. Ether was administered with the patient in the dorsal-recumbent posture (lithotomy position). The sphincter ani muscles were dilated so as to cause temporary paralysis. A curved incision about three inches long, anterior to the anus and extending transversely across the perineum, was made. It was concave anteriorly and the extremities were near the openings of the ducts of Bartholini's glands. As in the operation for posterior colporrhaphy by the Tait method, the vaginal wall was dissected forward and upward for a distance of about three inches so as to expose the anterior wall of the rectum. The hemorrhage was very moderate. A steel bougie-à-boule (French No. 18) was passed through the stricture and the tip could be felt through the rectal wall in front, thus giving an idea of the extent of the cicatricial mass. While the tip of this bougie was still above the stricture, it was directed so as to press the rectal wall into the wound. With a knife this tip was cut down upon and the incision enlarged vertically one and one-half inches, so that the rectum above the stricture could be explored. Examination showed that we had to deal with a uniform, circular. constricting mass of fibrous tissue about three quarters of an inch thick, forming a sort of diaphragm horizontally across the lower portion of the rectum. The opening was situated in the anterior portion of the diaphragm. The bougie was not removed but bent down in the form of a hook for the purpose of exerting traction. The vertical incision was then continued downward through the stricture making a cut about two and one-half inches long. The margin of the stricture was slightly ulcerated. There was no sign of malignant disease, and the cicatricial tissue seemed to involve all the layers of the rectum. Working through this vertical incision, a second vertical incision, about two inches long, was made in the median line of the posterior wall of the rectum through the stricture. The rectal wall in the vicinity of this incision was freed. The upper and lower extremities of this posterior vertical incision were easily approximated so that the incision could be closed horizontally by the application of five sutures of No. 1 chromicized catgut. After this the anterior incision was closed in a similar manner in a horizontal plane. No feces appeared in the rectum during these manipu-

lations. From time to time the wound was irrigated with a warm saline solution. The rectum having been shut off from the perineal wound, this was closed as in the Tait method, first burying a continuous strand of chromicized catgut for the deeper regions. The external wound was then closed with six silkworm-gut sutures.

On completion of the operation the caliber of the rectum at the site of stricture readily admitted three fingers. A rectal plug, four inches long, made by binding together three rubber drainage tubes with iodoform gauze and covering the whole with rubber dam, was inserted. The operation wound was such that no recto-vaginal fistula could follow but, if the wound had suppurated, only what would correspond to a fistula in ano would have resulted. The technic of the operation was not difficult, and all parts were readily accessible. The operation lasted about one hour and patient rallied well.

After-treatment: After operation patient suffered no particular discomfort. The diet consisted of liquids without milk for two or three days and this was increased gradually so that about eight days after operation patient was on full diet. The rectal plug was removed on the fourth day and the rectum irrigated with a warm boric acid solution. The small rubber tube was left in the rectum for a few days longer. On the fourteenth day the silkworm-gut sutures were removed. There was no swelling about the vulva or rectum. The stitches held perfectly and the wound healed without complication. Digital examination showed plainly two horizontal lines of sutures in the rectum. The bowels were kept quiet for one week, at the end of which time an oil enema was given followed two hours later by a suds enema. After that date patient was given regularly 10 minims of fluid extract of cascara three times a day. This served to keep the bowels regular. Patient had complete control of the sphincter muscles and the formed movements were normal in size, a circumstance which had not obtained for a number of years. Patient left the hospital about four weeks after entrance.

It is now thirteen months since operation. Patient is in excellent general health and suffers no local discomfort of any sort. Her bowels are regular and the stools are of normal size. There is an occasional streak of blood. About once in two months a rectal dilator has been passed for the purpose of guarding against any tendency to cicatricial contraction. On completion of the operation three fingers could be passed readily. At the present time the same fingers can be made to pass the site of stricture with some difficulty. The line of suture can be felt as a slightly constricted band. During the last six months there has been no very appreciable contraction.

It may be concluded that the method of treatment adopted was satisfactory for this particular case, and it should prove efficient in other strictures of a similar type. After any operation for stricture of the rectum, it is wise to continue the occasional introduction of a bougie for an indefinite period.

CHRONIC GONORRHEAL PROSTATITIS.

BY CHARLES GREENE CUMSTON, M.D., BOSTON, MASS.

THERE is not a surgeon who does not almost daily find in his consultation room at least one man anxiously awaiting the arrival of his turn, only to beg of him to rid him of a persistent gleet which has resisted every conceivable treatment. I believe that but few surgeons and not many general practitioners realize how often the unique cause of the continuation of these urethral discharges is due to the involvement of the prostate. If one will only take the trouble to make a rectal examination of this gland he will soon discover how frequently it is the seat of lesions in old cases of gonorrhea. Fezzoli believes that prostatitis is a nearly constant complication of gonorrhea, while Casper found the prostate diseased in 80% of cases of chronic urethritis. Montagnon made a rectal examination in 100 patients at different stages of gonorrhea, and in 70 of them he found the prostate involved, while Franck of Berlin, found this complication 210 times in 210 cases. Our own experience would lead us to believe that in about 80% of patients suffering from gleet the prostate is involved.

The causes of this frequent complication, although numerous, can be classified easily under two heads, namely, chronic urethritis and prostatic congestion. In all these cases presenting prostatic lesions one will always find a certain degree of posterior urethritis. This is the road that the infection would naturally follow in order to reach the prostate, and if, at the time that the posterior urethritis arises, the prostate should be in a condition of lessened resistance, a chronic inflammation of the gland would not be long in taking place; what in the beginning was a simple congestion rapidly becomes an inflammatory process.

The causes which give rise to chronic posterior urethritis and congestion of the prostate may be rapidly summed up as follows: Posterior urethritis is far from being infrequent, even at the beginning of gonorrhea, and Eraud has even gone so far as to say that it is always present at some stage of the evolution of gonorrhea. Colombini found that extension of the gonorrheal process to the posterior urethra occurred during the first week in 39.7%, during the second week in 65%, during the third week in 62.15% and during the fourth week in 84%.

There is no doubt in my mind but what chronic posterior urethritis is due in a large number of cases to a faulty régime and still more to defective treatment, especially by badly employed injections and their strength. The injection method or that of irrigation has become à la mode, and, as always happens, it has been carried altogether too far, so that at present a most salutary reaction is taking place in the amount given. Finger compared results of the treatment by injections given at the beginning and those procured by injections given towards the decline of the disease, and is absolutely against the former method. Montagnon also pointed out that in several of his cases injections prematurely given, or badly adminis-tered played a most evident part in the irritative process of the deep urethra.

Beside strong injections, strictures play a most important part in the genesis of chronic gonorrheal prostatitis. Their influence has been known for a long time, but it is only recently that surgeons have realized the fact that the stricture

need not be very tight in order to set up serious disorders back of it. The importance of stricture is all the greater inasmuch as it seems to be one of the causes, both of the chronicity of the posterior urethritis and prostatic congestion. By retaining the exudates in the posterior urethra and at the same time causing the treatment of the lesions which are seated here, often at the beginning of the gonorrhea, to be more difficult, posterior urethritis results, while causing difficulty in micturition the congestion of the prostate gland is produced and maintained. There are many sources of prostatic congestion, and frequently the congestion is one of neighborhood, whose starting point is in the bladder. Not unfrequently a calculous cystitis will give rise to prostatic congestion of considerable intensity, and when the gonococcus makes its apparition a prostatitis will inevitably result. Inflammation of the anus, rectum, ischio rectal fossa, hemorrhoids and obstinate constipation act in the same way. Other causes acting by direct congestion of the organ may be mentioned, such as sexual excess and masturbation, which I believe to be not an infrequent cause of prostatic disorders. Violent exercise, such as horseback and bicycle riding, must also be included in the list.

It is not our intention to mention the normal anatomy or histology of the prostate, and all that is necessary is to call to mind that it is an organ composed of glandular and connective tissue, that it is also contractile, its muscular elements being under the control of the erector nerves, as was pointed out in 1898, by Mislawsky and Bormann. We would also point out a more important fact in the history of chronic prostatitis, namely, the presence of minute muscular sphincters placed around the opening of the glands into the urethra. Under the influence of an inflammatory processus of the urethral mucosa, the contraction of these sphincters hinders the emptying of the cavities of the glands, and consequently sets up a stagnation of the normal secretions in the gland from which results glandular dilatation, and in which the bacteria coming from the diseased urethra find the pleasantest possible conditions for making their home and multiplying. From this time on the lesions rapidly multiply, the cavities of glands becoming filled by epithelium which proliferates, to which numerous leucocytes become added and which also invade the interstitial tissue.

The prostate being composed of glandular and connective tissue it is quite evident that both these elements may be the seat of the inflammation, but when one of them is diseased the other does not remain along time in a healthy condition, so that prostatitis is always a mixed process, with a predominance of the inflammation in one or the other of its constituent elements. When one is accustomed to massage of the prostate, one soon gets to learn that the diseased organ presents one of two types. In the first, the gland is greatly enlarged, soft and of uniform consistency, pain on pressure being very slight. In this case massage will express quite an amount of fluid. In the second group one finds a prostate of much smaller size, having an unequal consistency with indurated foci which, on pressure, are extremely painful. In this class the amount of liquid secreted is small and sometimes one will not even be able to express any directly from the gland, but on the other hand numerous filaments will be found in the urine. In the first class of cases inflammation of the glandular tissue is more marked than that of the interstitial tissue, while in the second the contrary is the case.

The few autopsies that have been obtained do not allow a perfect description of the macroscopic and microscopic lesions which are present in chronic prostatic gonorrhea, but from what has been learned they may be briefly described as follows: On section of the prostate it will be seen that the normal tissue has been replaced by an areolar tissue filled with lacunæ, formed by trabeculæ which have become anastomosed in every direction and circumscribed the areolæ of variable size. Small cysts are frequently encountered in the fibrous tracts, all this tissue being impregnated with a viscid liquid, and some of the areolæ, which have developed into small cavities, are filled with muco-pus.

Microscopically the glandular and interglandular lesions are to be noted. As to the lesions of the glands a proliferation of the epithelium of the culs-de-sac is remarked, which fills the cavity of the gland and to which numerous leucocytes become added; then suppurative destruction and disappearance of the epithelium takes place. As to the interglandular lesions we have, first, an infiltration of the interstitial tissue with leucocytes, and then a periacinous sclerosis occurs, and by the formation of bands of fibrous tissue extends through the prostate in every direction, marking off the areolæ which have already been referred to.

As to the pathogenic agents of all these disorders, it must be admitted that they are numerous, but the part played by the gonococcus is not always a preponderant one as might be inferred. The microbiological search should be undertaken with certain precautions, and it is quite necessary that one should know exactly if the pus to be examined really comes from the prostate, and in order to be certain on this point it is of the greatest necessity to rid the urethra of the secretion that it may contain. Consequently the patient should be requested to urinate and thus the first cleansing of the canal is accomplished. Then an abundant urethrovesical irrigation is given, with, for example, a solution of potassium permanganate, which the patient should expel from the bladder, and if it does not return absolutely clear, a second lavage should be given. Then by rectal massage the prostate is milked and the secretions coming from the *culs-de-sac* of its glands will accumulate in the prostatic urethra. An olive bougie is then gently introduced into the urethra as far as the prostatic *cul-de-sac* and the pus brought back on the bougie must necessarily be that coming from the prostate.

The pus thus obtained may not contain the gonococcus as might be expected, because this is the case in urethral secretions of old gonorrhea as well, but which in no way implies that the gonococcus is not the cause of the disease, or at least does not take part in the urethral and prostatic bacterial flora. It often happens that in the same patient one will only obtain several negative examinations and finally the last one will be positive. Thus may be explained, in all probability, the different results obtained by different observers. For example, Krögius only found the staphylococcus in twelve cases of chronic prostitis, while Finger says that the gonococcus is sometimes the pathogenic agent of the glandular infection, but that in the majority of cases there is a post-gonococcic secondary infection. In 30 cases of posterior urethritis and chronic prostatitis, Cohn found the gonococcus in one case, the staphyloccus in 11, the streptococcus in 3, the bacterium coli in one, some diplococci in 2, while in one the bacterium present could not be identified. On the other hand, Franck found in 210 cases that the gonococcus was present in 179, in 20 the staphylococcus and streptococcus were found, while in the remaining 11 only leucocytes could be discovered. In my 32 cases I was able to find the gonococcus in 19, the secretion in the remaining 13 contained the streptococcus twice and the staphylococcus 11 times. It may be said that no matter what the pathogenic agents may be, and whatever may be the cause of such different results, the prostate is invaded in the same way, namely, that when it presents a condition of lessened resistance it offers the same lesions which manifest themselves by the same symptoms.

Patients who come to the surgeon under these circumstances usually have had several attacks of gonorrhea. These have been treated badly and the patient has never been completely cured. He no longer suffers, but he still is the unfortunate possessor of a little drop of fluid present at the meatus upon arising, which occasionally almost entirely disappears and then, under the influence of an excess at the table it increases in amount. Driven to despair by the persistency of this condition, or preoccupied by the appearance of a new symptom, namely, pain, he decides to consult a surgeon. This pain affects essentially variable forms. Sometimes it is dull and gives rise to a sensation of weight in the perineum, extending down the thighs and to the lumbar region. A cutaneous hyperasthesia has been noted in one case by Deniau in the right lumbar region, and of the buttock on the same side.

In other cases the pain is not marked and only occurs at the time of micturition, and here the patient will complain of a sensation of heat when he first empties the bladder in the morning, this being due to the concentrated condition of the urine. The pain may be more intense, of a burning nature, and occurs at the moment of ejaculation, which becomes disagreeable to the patient and makes him fear coitus.

In other cases, which are far from infrequent, the patient suffers during defecation. The subject will tell you that when he goes to stool he has the sensation as if a foreign body were in the anus and this description is in itself so special that one might almost make the diagnosis on it alone. These patients are constipated and every time that they go to stool they feel as if they had a large, hard fecal mass within the anus which can only be expelled with difficulty.

Besides the pain there are the subjective symptoms, such as disturbances of micturition, sexual functions and defecation. The urinary disturbances are not very marked and simply amount to a frequent and imperious desire to empty the bladder. In other words the patient is unable to stop urinating when he has once commenced or is about to begin. Another symptom which has been pointed out by Watson, and which is occasionally met with, is the impossibility to urinate at the time the desire is felt, the patient being obliged to wait a moment before the stream starts. This may be classified under the "urinary stuttering" of the French authors.

As to the genital functions a decrease in sexual power is noticed which in some cases may be completely abolished; erection is incomplete, ejaculation is too rapid, while the sperm is often tinted with blood.

Defecation is frequently disturbed and, besides constipation and the pain which have already been alluded to, there is another phenomenon which draws the attention of the patient, namely, at the time that the fecal mass is expelled he perceives a few drops of a thick, white, or yellowish liquid come out of the urethra. This discharge, that has been described under the name of prostatic ejaculation, may be said to be practically pathognomic of chronic prostatitis.

Frequency of micturition, an intermittent flow at the time of defecation and a decrease of the sexual power profoundly affect these patients and not infrequently conduct them to an advanced degree of neurasthenia. Guided by this symptomatic *ensemble* the physician should at once be led to suspect lesions of the deeply-seated genito-urinary organs, and he should make it a point to carefully examine the prostate. There are two ways of doing this: either by the way of the urethra or the rectum. Catheterization, which naturally should be done with an olive-pointed bougie, gives nothing that is absolutely characteristic. It has been said that ordinarily there is an exaggerated sensibility of the prostatic region and that the bougie will bring back a little pus from the posterior urethra, but all this is extremely vague and only shows that a posterior urethritis exists.

More important are the sensations perceived by the hand which guides the bougie, which should be a No. 15 French. The instrument is gently passed down the urethra. In a normal canal the hand distinctly perceives a jump produced by the olive as it passes through the median aponeurosis, but sometimes a sensation of constriction will be felt the entire length of the posterior urethra and this change appears to be in

all probability due to an increase in the size of the prostate. On the other hand the passage of the bougie will allow one to discover the stricture or strictures which may be seated at different portions of the urethra, and this is a point of capital importance as regards treatment. Endoscopic examination has been tried, but is of little value.

The results obtained by rectal examination are far more important, although opinions differ very greatly regarding this point, some surgeons considering that an atrophy of the prostate is more frequently met with, while others believe that a more or less pronounced hypertrophy is present, and as far as my personal experience goes I should say, that a more or less enlarged prostate is encountered in a large majority of cases.

Rectal examination gives very exact indications as to the sensibility, the size and consistency of the gland. Tenderness on pressure is always present to some extent, and in the greater number of cases the end of the finger pressing on the organ produces a real pain, which, sometimes, is localized exactly to the point on which pressure is exercised, while at others it is felt throughout the entire gland, extending down the penis to the glans. Generally, this pain is not very intense, but in some cases moderate pressure of the finger is intolerable, and then I believe that one is in the presence of a subacute, rather than a chronic, prostatitis. The increase in size of the prostate varies very greatly from one case to another. In some it is very considerable, while in others it is hard to make out; sometimes the entire gland is involved, while at others only a single lobe is increased in size. As to the consistency it also varies. The prostate is either entirely distended and soft to the feel, or else one finds a slightly hypertrophied gland presenting several indurated foci which are very painful on pressure. This latter form appears to represent the type in which the interstitial tissue is more particularly involved, and perhaps is the one most frequently met with.

The examination of the discharge is of help in a certain measure. One naturally would not have much hesitancy in making a diagnosis between an acute anterior urethritis and chronic prostatitis, but occasionally a case may present itself in which a differential diagnosis between chronic anterior urethritis and prostatitis must be made, although this event appears to me largely theoretical, because one never meets with an acute anterior urethritis without the posterior urethra being involved as well.

One might have some hesitancy in distinguishing the discharge from a diseased prostate from certain normal discharges coming from the urethra, or the gland. Urethrorrhea is caused by a secretion coming from Cowper's or Littré's glands and is composed of a transparent sticky liquid, which normally appears at the meatus after an erection. This liquid resembles in no way the whitish or whitish yellow muco-purulent fluid which is present, especially in the morning, in chronic urethritis and prostatitis. Simple prostatorrhea may be also easily distinguished from the fluid coming from an inflamed gland, and is more frequently met with in people who give themselves up to illicit practices. The fluid coming from the former is transparent, and microscopically does not show any fat corpuscles or leucocytes, while in the case of chronic prostatitis numerous leucocytes are present and oftentimes also the débris of spermatozoids. Spermatorrhea is easily distinguished from chronic prostatitis by the presence of numerous active spermatozoids.

All this is quite simple, but oftentimes it is quite a difficult affair to make a diagnosis between a chronic posterior urethritis and prostatitis. If a patient describes a prostatic ejaculation, one may immediately diagnose the case as a chronic prostatis, but such cases are of extreme infrequency. In absence of this symptom it is quite impossible to make a differential diagnosis between chronic posterior urethritis and prostatitis from a simple inspection of the discharge, and all the techniques which are usually employed for collecting the fluid are more theoretical than real. According to our way of thinking it is safe to say that a patient who presents a drop of whitish discharge at the meatus in the morning, accompanied by a slight increase in the frequency of micturition, which may also be slightly painful, is, without any doubt, the subject of a chronic posterior urethritis, and it then simply remains to ascertain whether or not the prostate is involved in the inflammatory process. Under these circumstances a rectal examination of the gland will complete the diagnosis and gives us precise data.

From its immediate complications as well as remote ones, chronic gonorrheal prostatitis is by no manner of means an affection to be disdained. Inflammation of the prostate may give rise to lesions of the ejaculatory canals and by extension of the inflammation to the seminal vesicles, sterility may result. It not infrequently is the cause of relapsing epididymitis and it may also be the means of keeping up a chronic urethritis which cannot be cured until the prostate itself has been dealt with. Then again prostatitis quite possibly plays an important part in the etiology of senile hypertrophy, although on this point nothing definite can as yet be said.

The various treatments proposed for curing chronic prostatitis are extremely numerous, and a fairly large volume would be necessary should one undertake the description of all of them. Without attributing as much influence to general treatment as was formerly given it, I would, however, point out that in a measure it is necessary. These patients should be advised against violent and prolonged exercise, excess at the table, and in drinking. Their genital life should be carefully regulated, and in some cases hydrotherapy is advisable. Starch, sulphur, or carbonated tepid baths may be employed. The rectal pain, which is often quite intense, should

be calmed by the use of suppositories containing camphor and belladonna. Another excellent method is the use of hot water injections which act on the prostate through the rectal walls. The intestinal mucosa can easily support quite high temperatures and the action of heat on the prostate is extremely useful if kept up for a sufficiently long time. Simple water injections at a temperature of 45° or 48° C. may be ordered which should be retained within the rectum for about ten minutes. These therapeutic measures may have their utility, but it is of only slight value.

Given the pathological anatomy of the affection the foremost therapeutic indication is naturally to empty the glandular *culs-de-sac* of their mucupurulent contents, and in order to accomplish this massage of the prostate by the rectum is of the highest importance and fulfills a double rôle. In the first place, massage should consist of frictions as energetic as the sensibility of the gland will permit, extending from the periphery to the center of the prostate and thus one follows the direction of the excretory canals. The products of secretion of the dilated glands are thus milked out, as is proven by the appearance of a certain quantity of yellowish white liquid at the meatus.

The part played by massage is purely mechanical so far, but it also produces contraction of the muscular elements of the prostate and by modifying the glandular circulation by diminishing venous stasis and increasing the arterial circulation, absorption of the exudates still remaining in the gland takes place. The patient is asked to kneel on a table, or simply leans over the back of a chair and the operator, after having inserted his index finger in a rubber cot smeared with glycerine, introduces it into the rectum with the palmar aspect towards the prostate. Friction is then commenced from the periphery to the center of the prostate, as we have already indicated, and should be particularly carried out on those points which are more hypertrophied and painful or indurated. The energy of the frictions should be controlled by the state of tenderness of the organ and the intensity of the pain complained of by the patient. The duration of the massage should be from three to five minutes, which is quite sufficient. Carried out as we have indicated, this treatment is very simple and in no way necessitates any special installation. The first indication of the treatment is fulfilled and it is now necessary to attend to the urethra whose inflammation always accompanies that of the prostate. Silver nitrate is a friend of the mucous membrane and should be used in the form of instillations, which cauterizes the posterior urethra as perfectly as is possible without setting up any lesion of its walls. Casper's experiments on dogs and rabbits showed that a 1–50 solution of silver nitrate never produces any changes which would result in a cicatricial contraction of the mucosa or the submucosa. Silver nitrate carried into the posterior urethra may also act on the prostate itself, because massage may allow the penetration of the solution into the orifices of the excretory canals of the gland after they have been relieved of their secretions. The unfortunate results which have sometimes followed the use of silver nitrate are usually due to the fact that the solution was too concentrated. As to the pain when it is really sufficiently intense, a solution of cocaine may be instilled into the posterior urethra a few minutes before the nitrate of silver, but I have rarely seen a case in which this was necessary.

The technic is simple. An olive-pointed bougie preferably made of flexible black rubber such as only can be obtained from the French market, No. 15 or 16 French, sterilized and smeared with sterile glycerine, is slowly introduced into the urethra until the hand of the surgeon feels a slight jump. The bougie is then in place and the olive is lying in the prostatic urethra. By means of a small syringe containing from 2 cc. to 4 cc. of solution of silver nitrate the prostatic urethra will receive the desired quantity of the caustic. When the instillation has been done the bougie is withdrawn and the patient should be, if possible, kept in a recumbent position for a little while and should be instructed not to urinate for about half an hour unless the pain should become too great.

There are two points to which I desire particularly to call attention, namely, the strength of the solution and the quantity which should be instilled. One frequently uses a 1–20 solution of which from 10 to 12 drops are instilled in the posterior urethra, but I believe that it is just this intense treatment which has lent a bad name to instillation. I always commence with 1–100 solution for the first few instillations and according to the case increase it, little by little, until 1–50 is reached. The latter strength has always appeared to me quite sufficient and by proceeding as described, the patients tolerate the instillations well. As to quantity, we inject 2 cc. which is just about the amount requisite to cauterize the entire prostatic urethra. The relatively mild strength of the solutions that we employ have never caused any marked reaction.

Such are the principal points in the rational treatment of chronic gonorrheal prostatic, and we may sum up as follows: Dilate the stricture or strictures, especially those seated in the membranous urethra, proceeding with delicacy so as never to cause hemorrhage. Secondly, rectal massage of the prostate for from three to five minutes. Thirdly, request the patient to urinate in order to wash out the prostatic urethra and thus remove the secretions that the massage has caused to accumulate there. I believe that this is quite sufficient and preferable to large irrigations of potassium permanganate which are dirty and often produce useless traumatisms. Fourthly instill 1 cc. or 2 cc. of a solution of silver nitrate into the prostatic urethra, at the strength 1–100 for the first few times and rapidly arriving at 1–50. The treatment should be carried out every other day and the length of time that it must be kept up varies very considerably, but I have rarely met with a case where a cure could

be accomplished in less than six or seven weeks, and usually about three months is required.

The results that I have obtained have been, on the whole, excellent, and 27 of the 32 cases thus treated have been absolutely cured. I say this because they have been closely followed for periods varying from eight months to four years after all treatment had been stopped, and have been submitted on several occasions to the beer test, which has always remained negative.

THE EMPLOYMENT OF THE BLIND FOR MASSAGE.*

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THE object of this article is to stimulate interest in supplying the blind with another profitable means of livelihood, massage.

I am not going to take up your time by quoting a mass of statistics in order to show you how many people in the world are blind and so unable to support themselves, nor do I intend to expound either the theory or the practice of massage, but what I do wish, is to give you a brief outline of the work which has already been accomplished in training blind masseurs, and to suggest a few ideas, so that some of you may be interested to help.

I had planned to have at this meeting a blind man whom Mr. Hallbeck has been kind enough to teach massage, so that he could show you practically how expert and skillful a masseur a blind man can become, even after a comparatively short and imperfect training. Unfortunately, however, this man in whom Mr. Hallbeck and I have been interested, is in Canada, sick. I shall, therefore, give you a brief summary of some of the results of teaching massage to the blind in other places and then relate the main facts about his teaching, and tell you how expert he has become.

Many if not most of the efforts directed toward utilizing blind people for giving massage have naturally been stimulated by the custom which has existed in Japan for a great many centuries, of employing blind masseurs. There, the blind have enjoyed a special protection and indulgence from the emperor. They have been exempt from taxation; they have formed a sort of guild. Practically all the massage employed in Japan is given by the blind. Most of them learn massage when quite young. There, a very complete treatment is within the means of a jinrikisha man or ordinary laborer. A treatment costs a European ten to twenty sen. The masseurs can be found in almost any street of a town and summoned to the person's house, or their services secured at various depots, or at the large hospitals and clinics.

Although this universal custom of employing massage by the blind in Japan has existed for a great many hundred years, comparatively few well-organized attempts have been made in other countries. Most of such attempts have been made in quite recent years and a few of them have been reasonably successful.

In Russia, A. v. Goustowsky [1] mentions that at the time of writing (1900) the only school in Europe where the blind were taught massage was in St. Petersburg. In this school the pupils were taught anatomy, physiology and massage technic.

Dr. v. Nädler, director of the Alexander-Marien Blind Asylum for Children at St. Petersburg, has also attempted to have appropriate blind pupils taught. He regards two years as necessary for the study, and considers it advisable to teach the pupils another occupation as well. Their teacher is a medical student who became blind while studying medicine, went to Japan, and learned massage within two years.

Mrs. Z. I. Venguéroff began teaching massage to the blind in St. Petersburg, May, 1903. She selected a young girl who was born blind, who learned so quickly and became so adept that Mrs. Venguéroff was encouraged to continue her work with the blind. At the time of publication of her article,[2] there were eleven blind pupils at the school. Apparently her results have been very satisfactory. Her exhibition of photographs of the blind pupils at work evoked considerable interest last year at the Congress in Paris.

"The 16th of May, 1903, I was called to a blind patient who had a fracture of the arm. The plaster being removed, I began massage. After having had a long talk with my patient I asked myself if it were not possible to give the blind the possibility of learning massage, in order to make them able to help their fellowmen. I went to the Curator of a Blind Institution and expressed my intention. Soon after a young girl, Miss B., came to me and expressed a desire to learn massage. Miss B. was born blind, but the difficult task that she undertook was facilitated by the extremely developed feeling that she possesses, a feeling that we who see find almost supernatural. After having once been present at the dissection of a corpse Miss B. was able the second time to distinguish the different organs, the muscles, etc. As to the bones of the skull and the face, she could show the very smallest, and astonished the examiners by her answers. The press says of this case as follows: 'Yesterday at the school of massage founded by Mrs. Z. I. Venguéroff, took place the first examination of the pupils finishing their course of studies. The pupils knew anatomy and physiology exceedingly well and skillfully performed the practical massage at the Infirmary of the school. The inspector especially noticed the detailed and judicious answers of a blind pupil, her explanations of anatomical preparations, and her techni-

* Read before the Medical Section of the New York Academy of Medicine, Dec. 20, 1904.

[1] Congrès International pour l'amélioration du sort des aveugles à Paris. August, 1900, quoted in Zeitschrift für Diätetische und Physikalische Therapie. 1902. Band v, Heft 2.

[2] Quoted from her pamphlet, page 16, in the "Enseignement du massage aux aveugles." 1904.

cal knowledge of massage. Evidently this specialty may help those unfortunate creatures to work for their own and for others' benefit.' As to the technical ability of this blind pupil, I always heard the patients in speaking of her say, 'Oh, madam, do not deprive us of our blind angel. They are not hands, but the balm of life.' As to her accuracy and her interest in her calling one would wish these qualities were as well developed in thousands of masseurs and masseuses with sight. My first experiment having succeeded so well, I have now eleven blind pupils at my school. I have still noticed that the blind possess an astonishing capacity of guessing the sensibility of the patients. Having made different experiments on a patient suffering from neuralgia in the face, I found that the blind pupil after only three or four trials could soothe the pain. Not only do I think, I am convinced, that massage executed by the blind possessing so subtle a feeling will give the best results, and the pains taken by their masters will be recompensed by the consciousness of having done a good deal."

In Sweden, the home so to speak of massage, less encouraging results are recorded. Professor Nycander (Götenborg)[3] attempted to teach the blind or partly blind for about six years, but without much success. He found it difficult to instruct them in the elementary anatomy and physiology, because he had no text-books with raised letters.

I have not found any later or more encouraging accounts from Sweden.

A Monsieur Stier,[4] a blind man, studied massage in a private hospital at Bordeaux for about a year, and then settled in Paris, practicing there under the patronage of the "Association Valentin Haüy pour le Bien des Aveugles." He became very successful and was highly recommended, receiving as much as twenty francs for a single treatment. He died suddenly a few months ago.

The Association Valentin Haüy sent me an illustrated postal card showing a number of different ways of employing the blind. One of the illustrations was of a masseur giving massage.

Major J. Matignon, in a short article in *Le Journal de Médecine de Bordeaux* Nov. 22, 1903, No. 47, page 755, appeals for interest in the subject, and quotes some of the results obtained in Brussels.

A free school has been started there by a Dr. Daniel. At this school both massage and medical gymnastics are taught to appropriate blind persons. A committee of six gentlemen, some of them physicians, recently examined a small class of these pupils and pronounced their work excellent.[5]

In Denmark, Dr. Moldenhawer, in the King's Blind Asylum at Copenhagen, has attempted the instruction of the blind and has had some success. The course of instruction requires about ten months.

In Austria, a woman was taught by Dr. Kofranyni in Brünn. After four months' instruction and a certain amount of practice she found a situation in an institution and managed to earn about four hundred marks a year.

In Germany we find several isolated attempts, none of which are very striking, except in Leipzig. There, Dr. E. Eggbrecht, in 1899, began instructing the blind in massage, and some of his experiences and results are worth attention. In the first place he attempted to instruct them both theoretically and practically, quite as thoroughly as if they had had sight. He selected twenty-four persons, six women and eighteen men. Thirteen of these completed their course, four women and nine men. In selecting the pupils he chose those twenty years of age or older, who were energetic, patient, not nervous, and affected by no other difficulty such as tabes, tumor, weakness, or paralysis. A pleasant appearance was required and the eyes were concealed by a pair of smoked glasses. He naturally attempted to select persons of good muscular development, with strong hands, soft fingers, and a fine sensitive touch, which had already been trained and developed in some other occupation. The pupils were required to keep their hands and nails perfectly clean. They were first instructed in the elementary facts of anatomy and physiology. A text-book for nurses and masseurs was transposed into raised type. The skeletal parts were explained while the pupils felt the bones directly; and afterwards a living model, one of the class, was employed to apply their knowledge. The muscular system was studied first from plaster models and then upon the living body. The circulation and heart, nervous system, joints and other parts were studied from papier maché models. After several months the pupils were sufficiently trained to be able to undertake practical massage. They were shown the various movements upon their own bodies and then made them themselves with the instructor guiding their hands. He also had them give him massage while he corrected their manipulations. Active and passive movements were also taught. Dr. Eggbrecht was struck by their dexterity and by the fine sensitive touch which they possessed. In all they received about seventy-five hours of instruction before they began their practice upon real patients. They then went daily to various clinics and there massaged surgical, neurological, and gynecological patients. At the end of four months they became quite expert and gave complete satisfaction to both patient and physicians.

The effect of the massage upon the blind persons was excellent; they stood the exertion very well, gained in weight and strength, and developed a great interest in their work. The solution of the problem, where and how they were to obtain regular employment, has not been so easy. The author emphasizes the importance of having a blind masseur connected with each of the various clinics, hospitals, gymnasia,

[3] Zeitschrift für Diätetische und Physikalische Therapie. 1901—1902, page 124.

[4] IIIème Congrès National d'Assistance publique et de bienfaisance privée, Bordeaux ler au 7 Juin, 1903. "Assistance et Education des Enfants Aveugles," par M. Albert Léon.

[5] IIIème Congrès National d'Assistance publique et de bienfaisance privée, Bordeaux ler au 7 Juin, 1903, page 13.

baths and other institutions, of having a certain place in a town where the patients can come to the masseur for his treatment, and of having telephone calls to a central bureau when massage at people's houses is desired. He speaks also of the advisability of supervision over the calls for the masseuses.

It is in Great Britain, that the most perfectly organized attempt has been made to provide for the education, and more especially for the subsequent maintenance, of the blind as masseurs. There have been numerous individual attempts recorded, some more and some less successful. On the 21st of May, 1901, an Institute for Massage by the Blind was incorporated in London. The enterprise has already successfully trained a number of blind people, just how many I have not learned. At present they are in need of more financial help in order to secure a permanent central bureau, where the blind masseurs may *practice* their treatments, where some of them may reside, and where calls for their services may be received and responded to. Dr. J. Fletcher Little, who has personally superintended their teaching, informs me by letter that almost all the women whom he has taught have done well, but that greater difficulty has been experienced in regard to the men, and that but few of the latter are now self-supporting. In Vol. 2, No. 6, of *The Blind*, April 20, 1904, Dr. Little published an article embodying his experience. He says the Institute needs more financial help, and appeals for special interest in individual masseurs by groups of ladies and gentlemen, so that they may obtain more regular employment. He regards a three to six months' course long enough to fit them for this occupation, and considers them then capable of competing with those who see.

Turning now to America we find that in Boston there are two blind women who have been successful in their efforts at massage. One of them is not entirely blind; the other, Miss S., lost her eyesight at the age of ten. From the age of thirteen to twenty she resided at the Perkins Institute, where she was thoroughly well grounded in elementary science, anatomy and physiology. She paid sixty dollars for twenty class lessons in massage (with seeing pupils) and also took a course in regulation gymnastics and another in medical gymnastics. She subsequently instructed nurses in massage at the Danvers Insane Hospital. Dr. Page, the superintendent, speaks of her work in the highest terms. She has worked for several years twice a week at the Out-Patient Department of the Massachusetts General Hospital, under Dr. James M. Jackson. She now gives corrective gymnastic instruction at the Perkins Institute three mornings a week and finds that she can give, without over fatigue, from three to five treatments a day to patients at their homes, receiving two dollars per treatment. She works about eight months a year, and says that she is stronger than when she began. She thinks that people at first are apt to be rather prejudiced against the blind, but that later on they seem to overcome this prejudice. She thinks the general training is very important and that it is better for the blind to be trained in classes with seeing pupils. Miss S. is, of course, a remarkably bright woman and would have succeeded in any work which she undertook.

Mr. E. E. Allen, principal of the Pennsylvania Institution for the Instruction of the Blind at Overbrook, Pa., informs me that eight of his pupils have been trained in massage either at the Polyclinic or at the Orthopedic Hospital in Philadelphia. I wrote to the pupils and obtained replies from seven of them.

(I) E. L. C., twenty-five years old, blind at eight, from an injury. Entered Philadelphia School for the Blind at ten, took a literary course, piano lessons, and learned three trades. Spent six months at the Orthopedic Hospital and began to practice massage at Cambridge, Ohio, May, 1902. Nine tenths of his work he does at patients' houses, and except for the first visit requires no guide. Is earning about $100 a month.

(II) H. L. McD., recovered his eyesight four months' after finishing his course of massage at the Philadelphia Orthopedic Hospital. Is now a successful masseur.

(III) G. C. R., age twenty-six, blind at the age of twenty-three. Studied four months at the Orthopedic Hospital in Philadelphia and settled six months ago in Hartford, Conn. Is now paying about half of his expenses.

(IV) W. J. N., age twenty-nine. Lost his eyesight at the age of twenty-six, just before graduating from Jefferson Medical School. Studied massage for three months and began massage in Philadelphia, February, 1902. Has been self-supporting for over a year and has also taught massage and electrotherapy. He employs a boy as a guide.

(V) J. S. Blind at the age of thirteen. Began to study massage in September, 1903. Took three months' private lessons. Last winter was reasonably successful. Goes to patients' houses sometimes with and sometimes without attendance.

(VI) W. W. L. Became blind at the age of eleven. Studied in Philadelphia, worked both in hospital and outside for three years with the help of a friend who is a masseur. Was reasonably successful at massage, but went into business and has been fairly successful in business.

(VII) E. W. E. Has a little vision in one eye, enough to get about comfortably. Studied at the Polyclinic and the Orthopedic Hospital in Philadelphia for three months. Practiced for three months, at the German Hospital, settled at Williamsport, and did fairly well. Has since moved to Washington, D. C.

In New York I have been able to find an account of only one person, a Miss P., who studied and practiced massage for a short time here. She gave it up, for what reason I am unable to learn.

My own limited experience is about as follows: I applied to the superintendent of the New York Institution for the Blind, some three years ago, in order to find the appropriate blind people to teach. He suggested my searching some of the charitable blind institutions of New York City and I did so. I was unsuccessful in finding a suitable pupil at the blind asylum upon Blackwell's Island, and I then interviewed some seventy or more individuals from a list of the blind poor who receive a small yearly allowance from the city. Among these people I was unable to find a single person who was both willing and, in my opinion, fitted to start the occupation. I had

already consulted Mr. Axel C. Hallbeck, a masseur who has been very successful here in New York, and in April of last year he sent me Mr. Arthur Martineau, a French Canadian, thirty-six years of age, blind for about ten years, fairly well educated, intelligent, formerly a bank-note engraver. After a week of preliminary trial, Mr. Hallbeck was convinced that he could be taught, and gave him daily one or two hours in lessons and practice for two months, until the 20th of June, when he began actual practice in the wards at the New York City Hospital upon Blackwell's Island. I quote Mr. Hallbeck's account of his instruction: "While teaching him at my home, I always had some of his male relatives present, who were the material for work. At first I taught him general massage by doing the manipulations myself and having him put his hands on mine. After he had mastered the general massage I taught him local massage for special purposes. While teaching local massage, the greatest difficulty I experienced was to make him confine himself to the necessary region. I used to make him place his right hand as the upper limit for massage and the left hand as the lower limit. We applied massage for imaginary cases; for instance: False anchylosis, sprains, muscular rheumatism, lumbago, neuralgia, constipation, etc. At the same time I taught him anatomy and physiology, at least the most necessary points for him to know. I taught him the form of the skeleton, excepting the inner cranial bones; I taught him the construction of the joints with ligaments and cartilages, also about one hundred muscles and the principal motor and sensory nerves. In regard to physiology I explained to him the process of the digestion, the circulation of the blood, and the function of the nervous system. When he came to the City Hospital, after having practiced with me one or two hours every day, during two months, he commenced real work and soon attempted as many as nine cases every day. He treated patients of hemiplegia contracture, of tabes, of neuralgia, of progressive muscular atrophy, of dyspepsia, constipation, muscular rheumatism, lumbago, gout, sprains, false anchylosis, stiff joints, etc., in great varieties. As the house physicians can testify, Mr. Martineau was very useful and successful in many cases, and I believe that, as an assistant to a physician or surgeon and working according to their instructions, Mr. Martineau will be of great value as a masseur."

Dr. A. G. Bennett,[6] in a paper read before the New York Medical Association in October, 1897, brought out an interesting point from his correspondence with the directors of a number of the blind asylums throughout America, namely, the very small percentage of blind people who are self-supporting. The figures he quotes are at such variance that it seems hardly worth while to read them, but an especially suggestive fact is, that a much smaller proportion of blind women are able to support themselves than blind men. This would seem to add some importance to our idea of employing them in massage, because, as is quite evident from the few instances which I quote, the women have been especially successful. Dr. Bennett also urges the importance of one or more blind masseurs in all hospitals, dispensaries, sanatoria, insane asylums, private retreats, gymnasiums, Turkish baths and the like.

[6] Philadelphia Medical Journal, Vol. i, No. 10, March 5, 1898, p. 426.

In what I have already quoted, I believe that I have covered, or at least suggested, most of the essential points in the difficulties of teaching the blind massage. I only wish to emphasize the very special importance of a most careful selection of the person who is to be taught, since upon that the success of the project will most intimately depend. This selection can, of course, be made only by teachers in blind asylums, who are thoroughly interested in the plan and in perfect sympathy with its aims. The great necessity of a thorough fundamental training, in order that the blind masseurs may be quite as intelligent and well trained as seeing masseurs, is a point which cannot be too thoroughly emphasized.

The compensation which the blind masseur should receive for his services in private practice, is a detail which I do not feel can be decided offhand. In many more or less novel business undertakings, the most efficient plan to introduce the business is to underbid the other competitors. There is one thing to be considered, and that is, a great many patients who are unable to pay large fees would employ massage, and very gladly, if the expense were less.

The necessity for a guide if the masseur is to go about from patient to patient is also a detail which would depend entirely upon the individual and the place where he was located, as you may well judge from the examples which I have quoted. My own idea of the special utility of the blind as masseurs is, however, that they should be employed largely in stationary places, such as clinics, hospitals, bath resorts, gymnasiums, sanatoria and the like. There, at least, they are quite as independent of locomotion as the seeing masseurs.

No doubt, as Miss S, of Boston, writes, nervous people, the class of patients who are especially apt to require massage, might feel a certain repugnance to employing blind people, and might quite naturally be made more nervous than before the treatment. You will note, however, that Miss S. mentions that this difficulty usually vanished after the first visit. Moreover, this is a point upon which custum would undoubtedly alter most prejudices.

In one country, Japan, the blind have a practical monopoly over massage. There, massage is cheap and within the means of all classes. The blind are protected by the government, self-supporting, and contented with their lot. This condition has persisted for centuries.

In four countries, Russia, Belgium, England, and Germany, we have read of well-organized and reasonably successful attempts to teach selected blind people massage.

Here in America, the only definite series of

attempts in this direction which I have been able to learn have been made by Mr. Allen; but there is, it seems to me, very strong reason for expecting renewed and more persistent efforts. I am presenting this communication to the New York Academy of Medicine merely in the nature of a preliminary report, in the hope that further information and assistance may be forthcoming; in the hope that a well planned scheme may be devised for providing suitable blind people with instruction in massage and for furnishing a practical organization, so that they may obtain continuous employment after they have learned; in the hope that you, the physicians to the various hospitals, dispensaries, sanatoria and homes in New York, may be sufficiently interested in the problem to find places in some of these institutions for blind masseurs to work and prove their efficiency, and in the hope that some of the directors or superintendents of blind asylums may see this communication and select appropriate blind people for instruction.

I have purposely refrained from expressing any personal views as to the selection of appropriate candidates for such instruction, because it has seemed to me the few hints which I have incorporated from England and Germany are much more suggestive than any I might make myself. In closing let me tell you how thoroughly appreciated by patients with the chronic ailments at the New York Hospital, were the services of this blind masseur whom Mr. Hallbeck was kind enough to teach for me, and how keenly many of them missed his services when he left the institution. You are all too well acquainted with the value of massage in such ailments to warrant me in emphasizing its utility. I only wish to beg of you to give this matter your attention and your co-operation whenever in the future an opportunity occurs to further its accomplishment, and so gain the satisfaction of having aided some poor blind person to become an active, useful, interested, occupied and, best of all, independent individual.

CHRONIC BRONCHITIS IN THE ADULT AS INFLUENCED BY A CHANGE OF CLIMATE.

BY EDWARD O. OTIS, M.D., BOSTON.

It is a fact of common experience that chronic bronchitis in the adult and elderly person waxes and wanes from winter to summer in this latitude. In many cases, depending upon the stage of the disease, the "winter cough," as this malady is frequently designated by its most prominent symptom, markedly diminishes or quite disappears during the warmer months of the year, to recur as the colder, damp, changeable weather of late autumn or winter returns. As time goes on and the cough becomes more severe and extends over a greater period of the year, emphysema is developed, so that, in addition to the annoyance of the paroxysms of coughing, dyspnea on any exertion with asthmatic attacks increases the discomfort of the patient.

The bronchitis is, of course, frequently but a symptom of degenerative change in other organs, but from its insistence and the suffering it entails, demands the first therapeutic consideration, and, moreover, the climatic treatment of the bronchitis is equally favorable for the underlying causes.

From the fact that the cough subsides, or is greatly ameliorated during the warmer months of the year, it is an obvious inference that this improved condition can be maintained throughout the year, if we can transfer the patient to a similar climate to that of the warm months in his own latitude on the approach of cold weather. In other words, the oxygen of the air, as Thompson [1] well puts it, is the natural disinfectant for the respiratory passages, and "all catarrh will cease when the air tubes have been thoroughly disinfected." Therefore, if we can but put the patient where he can live as continuous an outdoor life as possible throughout the year, we are not only affording him temporary amelioration of his condition, but offering him a curative remedy as well.

To advise a change of climate, and one that must be repeated each succeeding year, is, it is true, a "counsel of perfection" in the majority of cases, for the treatment is an expensive one and involves the sacrifices due to absence from home for a considerable period. There remains a minority, however, who can avail themselves of a more favorable climatic environment without too great prejudice to their domestic or material interests; and even if the sacrifice is considerable, the compensation is commensurate with it, in the relief obtained from the distressing cough and the ability to pursue one's occupation, if it is such as can be conducted at a distance from the "office." Furthermore, one's life and working days may not infrequently be prolonged by the winter change of climate, which, again, is ample compensation.

What, now, is a favorable winter climate for chronic bronchitis? In a word, that in which the patient can pass most of his time out of doors, in a pure atmosphere. A moderately warm, equable temperature, an abundance of sunshine, freedom from chilly winds and dust, are the essential climatic elements. The humidity is of secondary importance, although if the cough be irritative and the secretion scanty and tenacious, a rather moist atmosphere with warmth is desirable, as, for example, Nassau or Palm Beach. If, on the other hand, the secretion is abundant, a drier climate is preferable, like Aiken, S. C., or Redlands, Cal. In not a few cases, a dry, warm inland resort of moderate humidity will serve well both classes of patients, — those with scanty and those with abundant secretion.

Wherever the resort, the first great essential must always be borne in mind, namely, that the patient is enabled to spend a very considerable portion of the day out of doors, and do it with comfort; he must bathe his bronchial tubes constantly with the disinfecting oxygen of a pure air.

[1] Reference Handbook of the Medical Sciences, Vol. II, p. 497.

As the majority of chronic bronchitics who seek a milder winter climate are elderly people, it is of importance, only secondary to the climate itself, that the accommodations should be of a known excellence, and this fact should be determined before recommending a patient to any special resort. Further, it should be known that a reliable physician is on hand, and the patient given his address. A secondary but important consideration is the question of diversion and recreation in the resort. Many persons used to the daily routine and activities of their regular occupations become uneasy and even unhappy unless they can find a substitute in some form of diversion or amusement; it is well, therefore, to bear this fact in mind, and in deciding between several resorts, all equally fulfilling the therapeutic indications of the case, to consult the tastes of the patient and the resources of the place.

TABLE I.

	AVERAGE MONTHLY TEMPERATURE.				AV. REL. HUMIDITY FOR 4 MOS.	AV. NO. OF CLEAR AND FAIR DAYS.	AV. WIND VELOCITY PER HOUR.
	Dec.	Jan.	Feb.	March	Per Cent.	Per Month.	Miles.
Jacksonville, Fla.	55.8	55.8	58.1	62.7	71.0	19.9	6.6
St. Augustine, Fla.	57.2	57.0	59.9	63.3			
Palm Beach (Jupiter), Fla.	67.2	63.4	66.7	68.8	83.1	24.2	10.3
Tampa, Fla.	62.2	58.6	63.1	66.4	82.2	24.7	6.4
Nassau, W. I.	70.0	69.0	73.0	76.0	75.1	"A land of sunshine"	6.7
Bermuda	64.8	62.5	62.0	63.9	78.7	21.2	8.4
Pinehurst and Southern Pines, N. C.	Average winter temperature ranges from 44° to 65° or 70°						
Camden, S. C.	Mean winter temperature, 45.16°						
Aiken, S. C.	48.8	45.7	50.2	54.0	59.9	24.5	....
Augusta (Summerville), Ga.	48.0	47.0	50.0	56.0	72.7	20.2	6.0
Summerville, S. C.	47.5	46.8	46.6	54.4	72.7	22.4	....
Marietta, Ga.	41.0	42.5	47.0	48.5		263 sunny days for year	
Thomasville, Ga.	52.7	52.1	56.6	61.5	63.3	23.2	6.5
Santa Barbara, Cal.	55.7	53.5	54.8	55.7	67.7	25.0	3.8
Pasadena, Los Angeles, Cal.	55.0	52.2	53.5	55.6	60.7	24.4	5.3
Redlands, Cal.	55.0	53.1	51.0	55.0	46.0		
Riverside, San Diego, Cal.	56.9	54.7	55.1	56.1	74.8	23.7	5.6

TABLE II.

	AVERAGE MONTHLY TEMPERATURE.			AV. REL. HUMIDITY.	AV. NO. OF CLEAR AND FAIR DAYS FOR 3 MOS.	AV. WIND VELOCITY PER HOUR.
	March	April	May	Per Cent.	Per Month	Miles
Lakewood	36.8	46.9	59.0	71.1	19.4	High winds at times
Asheville	Mean monthly temperature for spring, 53°		60.0	65.0	25.0	Average number of fair days for year is 259
Atlantic City	39.0	46.9	57.2	79.5	23.6	11.5
Old Point (Norfolk)	48.0	56.3	67.1	67.8	23.0	8.8
Washington, D. C.	41.0	53.0	64.0	66.0	21.0	7.3

In this country the resorts offering a suitable winter climate for chronic bronchitis, which are most accessible to the northeastern portion of the country are the southern Atlantic and Gulf coasts, some of the West India Islands, and the great southern "Pine Belt," extending from North Carolina through South Carolina and Georgia. If one desires to go farther afield, there is southern California. Bermuda may also be included in the list. Of course, there are other portions of the country offering a warm winter climate in Arizona, New Mexico and elsewhere, but they are less accessible than the southern and inland resorts, and one is not always sure of the accommodations. If a dry atmosphere is desired, the southern Pine Belt is to be chosen, or some of the inland resorts of southern California. If more moisture is desired, the coast regions or islands are to be selected. The southern resorts offer excellent accommodations, and are reached with comparative ease, and Nassau in the West Indies is only a short sea journey from Miami, Fla. Bermuda has a mild climate and most attractive and varied scenery, but the voyage occupies two days, and is often rough, an insurmountable objection to many people.

In Table No. 1 is given the average monthly temperature of the four winter months for various resorts above mentioned, together with the relative humidity, the wind velocity and the average monthly number of clear and fair days when obtainable.

In all, as will be seen, there is equability of temperature, moderate warmth, a large amount of sunshine and no great wind velocity. The humidity varies according to the distance from the sea. The farther south one goes, the higher the average temperature, of course, but in none is it excessive, ranging from 62° to 76°, while in the more northerly resorts of the south, in north-

ern Florida and the Pine Belt region the average winter temperature ranges from 40° to 63°. southern California has a very equable temperature throughout the year, and a great abundance of sunshine; here, again, the humidity depends upon the distance from the sea. Redlands, for instance, being about sixty miles from the ocean, has a very low relative humidity. Both on account of its distance and its admirable climate throughout the year, southern California would generally be chosen for a permanent residence rather than a winter resort.

For an elderly person without much reserve strength and with a dry, harassing cough, such resorts as Palm Beach, Tampa, or Nassau are very suitable, and in all the accommodations are excellent. If one desired a rather cooler, more invigorating atmosphere and less moisture, the choice would be such places as Thomasville, Aiken, Summerville, S. C., or Augusta, in the Pine Belt. In nearly all the resorts mentioned there are opportunities for out-door amusement of various kinds, and the life and scenery, differs ing widely from that at home, affords a constant interest and diversion.

In the latter part of March or April, one may come farther north and spend some weeks, before returning home, at such resorts as Lakewood, Atlantic City, Old Point Comfort, or Washington, the spring temperature of which closely approximates to the winter temperature of the resorts farther south, as is seen in Table 2. Asheville, N. C., possesses a favorable spring climate, also, but its altitude of 2,250 feet may be a contra-indication with feeble persons, or those suffering from cardiac disease.

If, for one reason or another, a winter change is found impossible for a case of chronic bronchitis, one can, with a measure of success, imitate nature by establishing a mild climate at home. In order to accomplish this, one must practically immure himself, during the cold weather, in a sunny, well-ventilated room, kept at an equable temperature, and the usual dry air of artificial heat moistened by some simple method of vaporization. Advantage can be taken of an occasional warm, sunny day for an out-door excursion. If the winter is thus passed at home, a change in the spring may be practicable to one of the spring resorts mentioned above. "Fortunate," however, as Fothergill says, "are the victims of chronic bronchitis, when, like birds of passage, they can flit south in severe weather. . . . But for those whose means will not permit such migration, then the chimney corner is the best place; and a cozy bedroom with a pleasant view from the window the fittest habitation during the winter months."

EVOLUTION AND TUBERCULOSIS.

BY JOHN B. HUBER, A.M., M.D., NEW YORK.

THE opinion is expressed, not frequently, but often enough to be entitled to consideration, that after all it were better for the race in general if its weaklings were left to die off; that efforts, for instance, on the part of the medical profession to save the lives of consumptives, especially of tuberculosis infants, are essentially misdirected, for the reason that they are in violation of the natural law of the survival of the fittest.

Considered upon a purely physical basis this tenet of the evolutionist would seem to require that creatures who are unfit had best be left to perish, because their continued existence would be an additional and a useless burden for the strong to bear, and a handicap upon the development and progress of the fit. No doubt the Spartans thought thus when they threw their infants, unhealthily born, to the wolves, and from a purely physical point of view they were, no doubt, quite right. They considered, perhaps, subconsciously, that the claims of the individual and those of the race here involved a contradiction, which were sensibly to be adjusted in but one way. To save a sickly infant would be contrary to communal hygiene, which would have for its ultimate object the improvement of the race.

However, we would not consider this tenet of the (physical) survival of the fittest to be indicative of evolution in all its phases; for it is, as here expressed, a tenet expressive of mere materialism. Evolution, to be a philosophy, an all-comprehending system upon which consistent living is to be based, must consider not only the purely material or physical, but all other aspects of life as well, — the mental, the moral, the emotional, the spiritual, — an evolution inclusive of the humanities. For no dictum in philosophy is more certain than that the physical, moral, mental, spiritual and all other phases of existence are inseparable, and mutually affecting and affected parts of the individual being. The most practical Gradgrind, the coldest political economist, the most austere statesman, will grant this, as well as those most susceptible to the emotional; at least they will, if they be men experienced in dealing directly with human conditions. If this view be accepted, a sympathy for the weak and the afflicted and a solicitude for their return to health and strength is altogether logical. Otherwise, the conclusion is inevitable that civilization, the *wille zum guten*, altruism, Gethsemane itself, are, and have been, colossal mistakes.

If the broad view of evolution here set forth be accepted, who would presume to take it upon himself to discriminate, or to select from among his fellows "the fittest" for survival? Many a useful man, who has given substantial comfort to others, has been unhealthily born and has had his infant life hanging, month after month, upon a thread, until the scale has been turned existence-ward, with results vastly beneficial to his kind. The biographical dictionaries furnish the names of many a weakling, who, having triumphantly grown to maturity, has impressed himself upon his civilization to its great good and profit.

However, even in the materialistic evolutionist's creed it is held somewhere, I believe, that there is in nature a constant struggle for the recovery of lost perfection, — a struggle in which she

much oftener succeeds than fails, in the long run, at any rate, if not in the first attempt. It has been well observed, that in medicine this striving after lost perfection is as much a part of nature's healing power as is the force making for recovery in most cases of sickness. It is a common observation among physicians that weakly parents not infrequently beget strong children. Oftentimes tuberculous parents have born to them virile offspring whose chances against consumption seem rather better than children of untainted parents. Before adolescence there are comparatively few deaths from tuberculosis; the period when it manifests itself most and during which most deaths occur from it, being between the fifteenth and sixtieth years. There is, then, a long period of latency in which, if the child be well nurtured and if he live hygienically, he will be likely to overcome such tendencies to disease as he may have begun life with.

Here, surely, are evidences of an upright and honorable offer on the part of nature to remedy untoward conditions. It is up to the physician to emulate her.

Massachusetts General Hospital.

CLINICAL MEETING.

FIVE CASES OF EXOPHTHALMIC GOITRE TREATED BY DIFFERENT METHODS.

BY JAMES M. JACKSON, M.D.

Two years ago I showed you two of these cases and I now wish to demonstrate them again and say a few words in regard to my final observations on the use of bromide of quinine in exophthalmic goiter.

M. H., age twenty-two, single, born in Russia. This patient you saw two years ago: You will remember her as the case of exophthalmic goitre operated upon by Professor Mikulicz. She first came to the out-patient department Oct. 2, 1901, complaining of a severe cough and hoarseness. She was found to have a marked case of exophthalmic goitre and was put on bromide of quinine. This treatment she kept up spasmodically until the following May. As there had been very slight improvement in her condition she consented to operation. On May 20, 1902, Professor Mikulicz removed the right lobe of the thyroid and tied off the arteries supplying the left. She made an uneventful recovery and seemed decidedly better during her stay in the hospital. The pulse dropped as low as 80 after the operation, but on returning home patient became more nervous, the pulse ranged above 100 and sweating and tremor increased. Some six months later she returned to the clinic stating that she had been fairly comfortable, but that within the past few weeks prior to this visit she had felt a very considerable return of her old symptoms, and it was then found that the left lobe of the thyroid had considerably increased in size, that the pulse was more rapid and sweating and tremor more marked. She was immediately put on bromide of quinine and this was continued constantly during the next six months. Since then she has taken only small doses, about 5 gr. a day and this only at times. As you see now, she is practically cured, her pulse remains at 80, there is scarcely any enlargement of the thyroid. Exophthalmos, sweating and tremor have disappeared. She has been at her work continuously since leaving the hospital and considers herself perfectly well.

The second case is L. S., age fifty-three, married. This patient came to the out-patient department Nov. 16, 1904, stating that for several years she had had profuse sweats, attacks of palpitation, great thirst, general weakness and inability to stay in a hot room. She had also noticed that her throat had been getting larger and her friends had spoken of her staring eyes. For two months there had been considerable dyspnea. Menopause was passed four years ago. Is now unable to do any work on account of weakness and marked general nervous symptoms. Physical examination showed marked emaciation, weight 117, temp. 99.3°, pulse 154, large goitre of both lobes and isthmus 13 inches in circumference. Marked tremor of hands, profuse sweating, marked exophthalmos, but no other symptoms. This patient was put under treatment with injections of thyroidectomized goat serum prepared by Park, Davis & Co., 1 cc. three times a week. During the next six weeks the improvement was rapid. This was particularly noticeable in the goitre and exophthalmos. At present, March 10, 1905, that is, four months after beginning treatment, you will see that she is practically well, that the exophthalmos and goiter have nearly disappeared, tremor and sweating very slight and pulse has been reduced to 100 or a little under. Patient has been able to return to her work and expresses the greatest satisfaction at the result of her treatment. In a short time I shall put her on bromide of quinine as she can follow this treatment at home, and in that way hold what she has gained by the serum treatment.

The third case, M. S., age thirty-five, married. This was an extreme case of exophthalmic goitre. She came to the out-patient department Sept. 29, 1903. She had been obliged to give up work on account of palpitation and clutching in her throat which at times nearly choked her. There was marked exophthalmos, goitre(both lobes), apex beat 160, pulse at wrist 140, diarrhea, sweating and hot flushes. She was immediately put on bromide of quinine, 15 gr. a day. For a month there was almost no change, but after that she began to notice that her palpitation was getting less and the choking sensations were markedly diminished. In the course of two months she again resumed her work and has not missed a day since. In six months she was practically well and since then she has taken her bromide of quinine only occasionally whenever she has felt a return of the nervous symptoms. As you see she is now without exophthalmos or goitre, there is but very slight tremor, and under excitement the pulse is 84, but at home, when not under excitement, she tells me that the pulse ranges about 70. She has gained 50 pounds in weight and so far as I can see is cured.

The bromide of quinine certainly accomplished a deal in this case as she had been under treatment for eleven years prior to coming to the hospital and had steadily grown worse and only came to us as a last resort.

F. S., seventeen, single. This also was an extreme case. She came to the out-patient department Nov. 24, 1900. Her history is as follows: Three weeks after the death of her brother which occurred in June, 1899, she noticed a marked swelling of the neck and palpitation of the heart and extreme nervousness. Then her symptoms grew worse gradually and at the time of her applying to us she was, as I have said, in a desperate condition. There was marked exophthalmos with all four of the ocular signs present, that is, Graefe, Stellwag, Möbius, and Jaffroy. Conjunctivae were very red and injected from her inability to properly

close her eyelids. There was a large goitre, pulsation in jugulars, heart slightly enlarged, pulse 156, marked tremor, sweating, excitability. She complained of headache, dizziness and some vomiting. There had been no catamenia for a year. She was admitted to the medical wards where she stayed for one month and was sent home very slightly improved. It was then that we began the treatment of bromide of quinine, and in six weeks she reported a very marked improvement in her general condition. Six months after beginning treatment she showed the following changes: pulse 92, no attacks of palpitation, much less tremor, and sweating, and a considerable diminution in the size of the goitre. Her catamenia had again appeared. At the end of eighteen months she was practically in her normal condition, except for goitre which had scarcely changed during the last year and a certain amount of exophthalmos. At times she was slightly hoarse and once during this time reports that the neck became suddenly very large so that her collar would not meet by two inches. This was followed by vertigo and frontal headache and she was obliged to lie down. These symptoms disappeared by morning. She was able to resume her work as coat-maker at which work she has continued ever since. As you see her to-day you would scarcely appreciate that she had ever been a subject of exophthalmic goitre. The exophthalmos and goitre have entirely disappeared and so far as I can see she is normal in every way.

The fifth case, Lillian S., twenty-five, married, came to the hospital April 29, 1901. Dates her trouble from 1898 when her house was blown down. At the time of her coming to the out-patient department she presented the most marked case of exophthalmos of any of the cases which I have recorded. The lids would not close completely, but there were no ulcerations. This case has been much slower in yielding completely to treatment than the others that I have shown. As you see, the exophthalmos is very marked, but the rest of the symptoms have now almost entirely disappeared. There is no goitre or palpitation, and her pulse now ranges between 70 and 80. Since beginning treatment she has never been able to leave off her bromide of quinine for any length of time and is still taking about 5 gr. a day. On the other hand she has never been able to take as much as the other patients, as 15 gr. produce very marked tinnitus aurium. She says that she has been feeling well during the past three years and has been able to attend to her household duties, but I regret that the treatment has not been more successful in reducing the exophthalmos. I have thought somewhat of putting this case on the goat serum treatment to see if we could not get quicker results in this one symptom.

THE BACTERIOLOGICAL BASIS OF THE SURGICAL TECHNIQUE IN WOUNDS ASSOCIATED WITH TETANUS.

BY OSCAR RICHARDSON, M.D.,
From the Clinico-Pathological Laboratory.

It is now common knowledge that many cases, usually children, appear in the accident rooms of hospitals from year to year suffering from injuries received as the result of the careless and indiscriminate way in which they handle and play with fireworks and toy pistols while celebrating the Fourth of July, and, in this neighborhood, the Seventeenth of June. The wounds in these cases, more especially those associated with blank cartridges, are in themselves of no great importance, but that which is of the gravest concern is the fact that in past years, just as sure as the holidays came round, a certain number of the cases injured died of tetanus. This fact, of course, immediately placed upon the surgeons the responsibility of dressing the wounds so as to avoid, if possible, the development of tetanus.

It is my purpose this evening to show, from a bacteriological investigation of a series of these cases, that the surgical treatment received by them in the accident room of this hospital has prevented the development of tetanus in three cases, and that in another case, outside of the hospital, the surgical treatment resulted in the recovery of a patient who was suffering from tetanus following vaccination.

On and about June 17, 1904, material from wounds acquired in celebrating the day was sent to the laboratory from fifteen cases. This material consisted in each case of all, or a good portion, of the lacerated blackened tissues of the wound, and care was taken to send any foreign material found embedded in the tissues. The material was then placed in separate blood serum tubes and kept in a thermostat for several days at 37° C., where the mixture of material and culture medium in the tubes gradually rotted. The object of this procedure is to develop a cultural condition known as symbiosis. This is a condition in which the ordinary bacteria present in cultures made from the tissues of dirty wounds rapidly develop and use up the oxygen to such an extent, that any of the anerobic group of bacteria present find the culture condition favorable to their growth. The bacillus of tetanus, as is well known, belongs to this group of anerobic bacteria. After three or four days in the thermostat the cultures were examined and five of them were found to be transformed into a black, foul, semi-fluid mass giving off a horrible odor which is considered to be characteristic of the tetanus bacillus. Cover glasses were then made from each of the fifteen cultures and stained with carbolfuchsin. In those made from the five cultures mentioned, many red rods with a round spore situated at one end were seen. This peculiar so-called pin or drumstick morphology is characteristic of the tetanus and pseudotetanus bacillus. The remaining ten cultures were kept under observation for some time, but in none of them were tetanus-like bacilli found.

From the five positive cultures it was imperative to obtain the bacilli in pure culture and inoculate animals. This was done, and from two of the cultures the tetanus bacillus was isolated while from the other three the pseudotetanus bacillus was recovered.[1] The tetanus bacilli grew typically and produced their characteristic effect in animals, but under similar conditions and even with large numbers of the micro-organisms the pseudotetanus bacilli produced no effect whatever in the animals, and the culture growths were entirely different from those of the tetanus bacillus.

Dr. J. B. Bain, working in the laboratory of this hospital, recorded, in 1901, for the first time, a careful description of the cultural peculiarities of

[1] In the difficult work of isolating the tetanus and pseudotetanus bacilli much assistance was rendered by Mr. Roger T. Lee.

the pseudotetanus bacillus and the results of animal inoculations. The bacillus was recovered from a blank cartridge wound. Again, working in the laboratory, Bain recorded, in 1903, the recovery of the bacillus of tetanus from a blank cartridge wound where the prompt excision of the injured tissues in all probability prevented the development of tetanus. To these cases we now have to add three in which the pseudotetanus bacillus was recovered and two in which the bacillus of tetanus was recovered. Again in November, 1904, we have to record another case of blank cartridge wound from which the tetanus bacillus was recovered and the animal inoculations were positive. It is evident, if the injured tissues of the wounds in these four cases which contained tetanus bacilli had not been so completely removed, that in all probabliity tetanus would have developed in all of them.

As to the surgical technique followed in the accident room in these cases it is well illustrated by the record of the treatment of the case which came in last November. I am indebted to Dr. Quinby for the record of this case which appeared during his accident room service.

G. S. G., a schoolboy, fourteen years old, entered the accident ward of the Massachusetts General Hospital on the morning of Nov. 5, 1904, showing a blank cartridge wound of the right thigh, which occurred accidentally the previous evening.. Physical examination showed a normal heart, lungs, abdomen and temperature. In the outer aspect of the right thigh, at about the junction of the middle and upper thirds, there presented a circular hole in the skin about .8 cm. in diameter. All blackened tissue was excised and the whole placed in a sterile culture tube. Up to this point no antiseptics had been used. There was no extension beneath the fascia lata, so, after carefully dissecting out every bit of macroscopical powder or blackened tissue, the whole wound was wiped out with a hot solution of mercuric chloride, 1-1,000, and then douched for ten minutes with the same substance, 1-3,000. The skin wound was then partially closed with silkworm-gut stitches, leaving a rubber drain in the dependent portion. The leg was placed on a ham splint and the wound dressed with dry gauze.

Four days later the wound was found to be mildly septic. All the stitches were removed and the wound cleaned up with peroxide of hydrogen and dressed with a moist corrosive dressing. One half the adult dose of Parke, Davis & Co.'s antitetanic serum was injected deep into the extensor muscles above the wound. The Pathological Laboratory reports probable positive growth of tetanus bacilli. Nov. 10. From this date the lesion ran the steadily improving course of the ordinary granulating wound. At no time did the boy show any symptoms of tetanus poisoning, though on the day before the injection of antitetanus serum his temperature reached 100° F. A little later from the wound in this case more material was sent to the laboratory by Dr. Lincoln Davis, but no tetanus bacilli were recovered from it.

I now wish to call your attention to a case in which the wound was of an entirely different origin and character from those which have been considered. Some time ago Dr. Mixter kindly sent to me for bacteriological investigation certain material. This material consisted of a vaccination shield and several small portions of foul disintegrated tissue, some of which were adherent to the shield. The material had been removed from a vaccination wound and the question of the presence of the bacillus of tetanus was of decided importance as the patient at the time of the removal of the material had begun to show signs of tetanus. It goes without saying that the surgical treatment in this case was thorough and that injections with tetanus antitoxin were made. From the shield and from the portions of tissue taken from the vaccination wound the bacillus of tetanus was recovered. The cultural characteristics of the micro-organism found in this case and the results of animal inoculations were beyond question identical with those of the bacillus of tetanus. The patient recovered.

We have, before us, then, for consideration a series of five cases, all presenting wounds from the injured tissues of which the bacillus of tetanus was recovered. The surgical technique followed in treating these cases was in brief to dissect out thoroughly any and all portions of injured or discolored tissue as well as any foreign material and to administer tetanus antitoxin. Four of the cases never showed any signs of tetanus, and in one, the vaccination case, the diagnosis of tetanus was made. All of the cases recovered.

Judging them from the results of the treatment of this series of cases it seems justifiable to believe, at least from a bacteriological basis, that the surgical technique followed was entirely adequate, and especially so when we take into account the gravity of the prognosis in tetanus.

Dr. R. H. Fitz made a brief communication concerning pericardial paraceutesis. He called attention to some of the conditions preventing the recognition of pericarditic liquid exudation. The importance of aspiration in the xipho-costal space was emphasized, when the presence of liquid is suspected and tapping in the fourth and fifth intercostal spaces gives no evidence of its existence.

STENOSIS OF THE PYLORUS IN INFANCY.

BY CHARLES L. SCUDDER, M.D.

IT is not generally recognized that a narrowness of the lumen of the pylorus sufficient to occasion symptoms of obstruction exists in infancy and at birth. Individual instances of stenosis of the pylorus in infancy have been recorded. Pediatrists are more or less familiar with these cases. The surgeon and general practitioner are meeting more and more such cases, but at present only scattered references to them are found in literature. I have collected and analyzed these cases with the assistance of Dr. Quinby, and as a result of this investigation we find accounts of 55 autopsies and 60 operations, a total of 115 cases. With each case is a clinical history.

The symptoms in these cases are fairly uniform and are very characteristic: vomiting, expulsive in character and almost never containing bile; constipation; progressive wasting; visible gastric peristalsis. An enlarged stomach and a palpable tumor are usually present.

In 55 cases coming to autopsy the findings are very uniform: a hard pyloric tumor in which there is an hypertrophy of the circular muscular

fibres, an hypertrophy or dilated stomach wall, a dilated esophagus, narrowing of the pyloric lumen and an hypertrophy of the mucous membrane of the pylorus and collapsed intestines.

The surgeon in operating has found likewise a pyloric tumor, a dilated stomach, a narrow pylorus and collapsed intestines. The evidence, therefore, from the clinical story, from the pathological examination and from the operative standpoint, is conclusive as to the existence of a distinct pathological lesion occasioning the symptoms of either partial or complete obstruction at the pylorus in infancy. These cases group themselves into the acute or subacute or chronic. The acute cases are those attended by complete obstruction, the subacute or chronic cases being those attended by partial obstruction.

Medical treatment has been followed in some of these cases and except for relief to a few of the symptoms has been found incompetent.

Surgical treatment, on the other hand, has been followed by brilliant results even in spite of the fact that the cases have been operated upon by different surgeons and that the patients have been extremely ill when the operation was performed. The operative mortality is about 45%. There have been four methods of operation followed: pyloroplasty, the Loretta operation, gastro-enterostomy and pylorectomy.

There are various hypotheses as to the etiology of this condition. Three of these hypotheses deserve mention; first, that of Nicoll who holds that the tumor at the pylorus is a prenatal overgrowth of normal tissue; second, that of Thomson who holds that the hypertrophy is occasioned by an inco-ordinated contraction of the gastric muscles due to some derangement of the nervous mechanism of the gastric nerves; and third, that of Pfoundler, who maintains that the tumor is occasioned by an increase of function due to an irritation arising after birth.

It is of vital importance to remember that this condition exists in infancy, that it may be confused with the common indigestion of infancy, that it is far more common than has hitherto been supposed, that medical treatment is but palliative and that early surgical measures will afford the only satisfactory treatment.

SARCOMA OF THE PROSTATE.

BY ARTHUR T. CABOT, M.D.

I WISH to report two cases of sarcoma of the prostate. As far as I can discover by an examination of the catalogue these are the only two cases which had been recognized in the hospital. The first case is interesting in that the tumor of the prostate is secondary to one in the testis. All treatises on the subject give it as a rule that tumors of the prostate are rarely secondary. Unfortunately, the observation was made at a time when microscopical examinations of tumors were often omitted, and we, therefore, lack the final proof that the tumor was a sarcoma. The clinical history and pathology are so characteristic of sarcoma, however, that no doubt is felt as to its character.

The patient, a young man of twenty-six, entered the hospital Jan. 5, 1884, with a tumor of the testicle which was removed by Dr. Henry J. Bigelow. Mr. K. re-entered the hospital on Oct. 24 of the same year with the report that for four or five months he had had difficulty and painful burning in urination. One month before he had had to resort to a catheter to void the urine, and at the time of entrance, he was passing the catheter once an hour. Noticed bleeding on three occasions within the past three weeks. The hematuria reappeared soon after his entrance. The prostate was large and irregular in shape. The pain in the bladder and frequency of urination rapidly increased, so that presently it required 3 gr. of morphine to keep him reasonably comfortable. Three weeks after entrance it was decided to do a suprapubic operation to supply drainage to the bladder. This was done by Dr. Cabot. A tumor was felt in the prostate projecting into the bladder. The patient died on Nov. 24, about a week after the operation.

The autopsy showed a tumor of the prostate and bladder with gangrenous cystitis, pericystitis, pyelonephritis and also some suppuration behind the kidney. There was also a tumor the size of a lemon just below the pancreas and right kidney and behind the peritoneum.

Section of this tumor showed it to be somewhat infiltrated with pus. Its presence in the region of the right kidney was especially interesting as that is the point where secondary growths following sarcoma of the testis are apt to appear.

I have seen three or four such cases and explain it by the fact that the lymphatic supply to the testis connects with the glands in this neighborhood, and not with the glands in the pelvis or inguinal region.

The second case was that of an old man, age seventy-five, who was sent to the hospital on April 19, 1904, by Dr. H. H. A. Beach. This patient had always been in good health. Fifteen years ago had retention, requiring catheterization. Since then had been very well, except for a slight occasional difficulty in starting water. One year ago this difficulty became more pronounced and he began to notice an increased frequency of urination. Presently a sense of fullness in the bladder was noticed, which continued and increased up to the time of entrance. At that time he was passing water every hour. The night before entrance the difficulty in urination became very great and blood appeared in the urine. Blood also leaked away from the urethra between urinations.

He was a well developed and nourished man. Nothing was noticed in the chest or abdomen, except fullness with dullness extending from the pubes half way to the umbilicus. A central tumor somewhat masked by the thick abdominal walls was felt in this region.

Examination by rectum showed enlargement of the prostate which was flattened out behind, not hard. The patient finally consented to an operation for the arrest of the hemorrhage.

Suprapubic incision came down upon a tense tumor resembling the bladder. On plunging the knife into this, it was found to be solid and on enlarging the opening, it was found to be filled with a grayish friable material, which was sponged out in large masses. After this had been to a great extent removed, the bladder wall was made out behind the tumor. The bladder was opened upon a sound passed through the urethra. The cavity in which the tumor lay having been thoroughly curetted with finger nail and scoop, two tubes were introduced into the bladder for drainage.

This operation was done somewhat hastily as the patient did not bear the ether well. The vesical hemorrhage ceased at once, and as the wound contracted, considerable loosened portions of the growth were thrown out. The cavity finally granulated and closed in a solid and satisfactory manner about the middle of June.

This patient was seen ten months later and at that time he was voiding his urine with reasonable comfort, and no evidence of a recurrence of the growth could be made out.

AN OBSERVATION OF THE OCCURRENCE OF THE BACILLUS OF INFLUENZA (BACTERIUM INFLUENZÆ) IN PYELO-NEPHROSIS.

BY JAMES HOMER WRIGHT, M.D.,
From the Clinico-Pathological Laboratory.

THIS observation is thought to be worthy of record because, as I am informed, by Dr. F. T. Lord, who has recently examined the literature, the instances in which the bacillus of influenza (Pfeiffer) has been demonstrated in situations other than the respiratory tract and meninges, are as yet few.

In a culture on coagulated Löffler's blood serum made from a kidney showing the lesions of pyelo-nephrosis said to have been due to calculi, some small polar staining bacilli were found in scrapings from the surface of the blood serum. A few other bacteria were present. The small bacilli were isolated in pure culture on a blood agar slant tube as used by Pfeiffer for the cultivation of the influenza bacillus. Upon this medium they grew in the form of minute, transparent, not confluent, colonies. They did not grow on plain agar nor in bouillon. The colonies consisted of small bacilli of variable length staining deeply at the poles and showing unstained spaces in their cytoplasm. They were not stained by Gram's method.

In morphology, staining peculiarities and in cultural appearances these bacilli agreed with the bacillus of influenza as described by Pfeiffer, and with bacilli cultivated in the Clinico-Pathological Laboratory from sputum and from the exudate in certain cases of bronchopneumonia.

Nothing is known concerning the clinical history of the case from which the kidney came.

Reports of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

STATED MEETING, APRIL 10, 1905.

THE President, DR. T. E. SATTERTHWAITE, in the Chair.

DR. ARTHUR J. WOLFF, bacteriologist of the Board of Health, Hartford, Ct., read a paper on

DIPHTHERIA ANTITOXIN IN CEREBRO-SPINAL MENINGITIS.

When the disease has invaded the most important and vital centers of the body, he said, common sense teaches us that we are utterly powerless to bring about a cure; therefore, all efforts having for their aim the diminution of mortality, if they are to be at all effective, must be employed in the early stages of the disease. Whether it was peculiar to the organism which was observed in the lumbar punctures during the Hartford epidemic or not, he early observed that the generally claimed specific character of the behavior of the diplococcus intracellularis to Gram's stain was not borne out by the facts. As a result of his observations it would follow that the differential diagnosis of diplococci found in nasal or throat cultures, when based upon the Gram reaction, is as inaccurate as the attempt to differentiate by the same reaction the diplococci found in lumbar punctures, taken from actual cases of meningitis.

Having given a *résumé* of his laboratory studies of the diplococcus, he went on to say that shortly before the epidemic broke out, the cultures which were sent daily to the laboratory began to change as regards the general characteristics of the bacterial flora observed. This was striking to him, as he had been examining such cultures at the Hartford laboratory for ten years. Diphtheria, which had been very prevalent, had almost disappeared from the city, and cultures of Klebs-Lœffler bacilli were moderately rare. In place of the ordinary forms of bacteria, heretofore observed in these cultures, he began to discover almost pure growths of a diplococcus which up to that time had been rarely seen. He soon noticed that cultures containing Klebs-Lœffler bacilli either were completely devoid of this diplococcus, or the latter was found very sparsely disseminated in the culture. Whatever significance the rarity of diphtheria might have as regards the epidemic of meningitis, this led to an investigation as to the possibility of an antagonism between the two organisms. The diplococci found in the cultures from the nose in meningitis cases were found to respond in no wise unlike the diplococci found in the lumbar punctures, including their varying reaction to the Gram stain. Dr. North believes, notwithstanding opinions heretofore advanced to the contrary, that the diplococci found in these cultures, the diplococci found in ordinary routine laboratory work, the diplococcus intracellularis meningitidis, are one and the same organism.

The experiments to determine the existence of an antagonism between the organisms of diphtheria and meningitis were as follows: Cultures made in bouillon of loops from agar growths of meningococci from lumbar punctures and loops from blood-serum growths of pure cultures of Klebs-Lœffler bacilli mixed, showed in some cases growths of Klebs-Lœffler bacilli and very few meningococci, or vice versa, entirely dependent upon which organism was sown in the greater amount. When equal amounts of twenty-four-hour cultures of Klebs-Lœffler bacilli and meningococci, growing in bouillon, were mixed, an examination twenty-four hours afterward showed rich growths of meningococci and very few Klebs-Lœffler bacilli, the latter being precipitated, curled up, and agglutinated. Loops obtained from an agar culture of a lumbar puncture sown in a quantity of diphtheria antitoxin of 500 units' strength, examined after forty-eight hours, and also after nine days, showed the serum perfectly clear and devoid of organisms, while the precipitate contained a very few meningococci. A twenty-four-hour bouillon culture of the meningococcus, when mixed with 3 cc. of diphtheria antitoxin of 1,000 units' strength, gave a precipitate in twenty-four hours, the liquid above being perfectly clear and devoid of organisms in forty-eight hours. Smears of the cocci in the precipitate took the stain with the greatest difficulty. From these experiments he concluded that there is an antagonism between the Klebs-Lœffler bacillus and the meningococcus, that the Klebs-Lœffler bacillus is precipitated and agglutinated by the meningococcus, when rich cultures

of both are mixed; and that diphtheria antitoxin, in proper proportion, inhibits the growth of the meningococcus.

Of the success obtained with the treatment of meningitis with diphtheria antitoxin he said he could say but little, but the enthusiastic opinions which had come from physicians who had used it led him to feel that he had suggested a valuable means for combating one of the most fatal epidemic diseases which could visit a community. He considered the antagonism of the Klebs-Lœffler bacillus, its toxin, or its antitoxin, to the meningococcus entirely within bacteriological law. Examples of such antagonism might be mentioned without number. For example, the staphylococcus pyogenes aureus, the typhoid bacillus, the bacillus of Friedlander, etc., are all antagonistic to the anthrax bacillus. He also referred to the experiments on the value of the streptococcus of erysipelas in the cure and protection of rabbits suffering from anthrax, to the experimental work of Watson Cheyne in the same direction, to that of Schwimmer, who studied the antagonism of the erysipelas streptococcus to the organisms of different infectious diseases to that of Kemper on the antagonism between the vibrio of cholera and the coli communis, and to that of Gromakowsky on the rôle of diplococci in antagonism to streptococci and pyogenic staphylococci. He likewise called attention to the work of Garre, Lode, Moser and Von Pirquet in the same line. This, Dr. North said in conclusion, was a limited exposition of the facts which led him to suggest the use of the antidiphtheritic serum for the treatment of epidemic cerebrospinal meningitis, and if his suggestions should result in only a small diminution in the frightful mortality from a disease for which no remedy has hitherto been found, if he had succeeded in opening the door through which men of intelligence and experience might follow with the result of giving something of value to the medical world and to the public, his object would have been fully accomplished.

DR. H. W. BERG read a paper on

THE PRESENT LIMITATIONS OF SERUM THERAPY IN THE TREATMENT OF THE INFECTIOUS DISEASES.

One of the limitations which he mentioned was that as the bacterial cause of the disease and its toxin are both specific, the specificity of the antitoxin serum follows as a natural sequence, and must be recognized. In enlarging on this point he said: "He is an enemy to the future progress of serum therapy who advocates the therapeute utility of the antitoxic serum specific to one organism for the cure of the toxic or microbic ravages of another. There is no logic in such a recommendation; rather is it the worst kind of empiricism. Preferable by far to adhere to the symptomatic treatment of disease than rend asunder the complete logical chain upon which legitimate serum therapy depends. Such therapeutic experiments as the use of diphtheria antitoxin in the treatment of pneumonia or epidemic cerebrospinal meningitis have no bacteriological groundwork upon which to rest, and are repugnant to the principles of scientific therapy. Both pneumonia and cerebrospinal meningitis vary from time to time in severity and in their death-rate. The results in a number of cases, even if large, treated on such an illogical and inconclusive serum therapy basis, teach nothing as to the efficacy of such therapy. Such methods fall into disuse long before they have gained even a limited vogue. It is true that the injection in limited quantity of a heterologous serum, like horse serum, whether it is from an immunized or non-immunized animal has a tendency as Metchnikoff has shown, to stimulate phagocytosis, and this may thus aid secondarily in the disintegration of any pathogenic organism that happens to be floating in the blood. But this would be as readily accomplished by the injection of non-immunized horse serum. Even this is not probable, for reasons which we have no opportunity of discussing here.

DR. WM. N. PARK, director of the Research Laboratories of the New York City Department of Health, said that he could not see any ground for supposing that the Klebs-Lœffler bacillus was antagonistic to diplococcus intracellularis. During the epidemic of cerebrospinal meningitis this season, diphtheria antitoxin had been very generally tried in New York, thousands of dollars' worth of the serum being employed; but at the present time there were only two hospitals in the city where it was thought that this treatment had been beneficial. Personally, he believed that it does neither good nor harm, and he certainly had seen no indication that it had proved of any value.

DR. EDWARD WAITZFELDER, who was unable to be present, sent a communication in which he said that his five weeks' experience with the diphtheria antitoxin treatment at Gouverneur Hospital had been such as to make him desirous of testing the method further. In the first half dozen cases it seemed to act almost as a specific, but a more extended observation reduced his enthusiasm, though it did not lessen his interest. There could be no doubt, he said, that an improvement resulted from its use, and that a certain amount of germicidal action was obtained in the cases in which the antitoxin was employed. Whether this result came about from the direct destruction of the meningococcus in the blood or by the inhibition of its toxin, reducing the amount and thus controlling symptoms, he would have to leave to the bacteriologists to determine. From the results he had obtained he thought this plan of treatment worthy of a more extended trial, for should its usefulness be demonstrated, not only would a decided advance in medicine have been made, but it would also be established that a kinship exists between certain of the microorganisms, and that the toxin of one of the group is antagonistic to all (or many) of that family. It seemed to him at first like medical heresy to suppose that the toxin from the Klebs-Lœffler bacillus could be potent in the destruction of the meningococcus, but the harmlessness of the remedy and the laboratory experiments of Dr. Arthur J. Wolff induced him to try it. The results in his cases were published in the *Medical Record* of March 11, 1905. This entire matter was still in the embryonic stage; the questions of efficacy, dosage, mode of action, etc., were all to be elucidated. But one thing had impressed itself upon his mind, namely, that if the antitoxin was to be used it should be given early and in large amounts. Otherwise he felt certain that it would prove of little value, since organic changes take place early in the disease, and encephalic lesions, resulting from the direct action of the meningococcus, are accountable for those sensory, motor and trophic symptoms which are observed after the first few days. For some time past Dr. Waitzfelder said he had been of the opinion that there is a closer relationship between the various germs producing the communicable diseases than has hitherto been recognized, and that the difference in their morphological appearance is due in part, if not entirely, to their environment. He did not believe that they all belonged to one family; but, on the other hand, he did not think that each was entirely distinct and separate from the others. It was possible that there are a number of family groups, each having general characteristics, and that the change in form and mode of action is due in part to receptivity of the patient (that is, the power of resistance). It would seem as if there were some similarity of action on the part of certain

of the germs, since in the beginning of epidemics of certain diseases all the cases are profoundly toxic, whatever the previous condition of the patient may have been. Other affections were gradual and insidious in their onset, and the full virulence of the disease was not manifested until some time after the evidence of infection was shown. In conclusion, he said that all had seen good results from the use of antistreptococcus serum in both erysipelas and chronic pyemia; and yet in each of these diseases the organism was other than the streptococcus.

DR. L. EMMETT HOLT said that his experience with epidemic cerebrospinal meningitis this year and last comprised 49 cases, the greater number of which were at the Babies' Hospital and in patients under two years of age. In infants under one year the mortality was 100%; of 21 such cases, 16 had died, and it seemed probable that in the five still under treatment the result would be the same. As to the use of diphtheria antitoxin in this disease, he had employed it in 10 cases in the hospital and two outside, the amount given varying from 6,000 to 40,000 units in different cases, and the administration continuing for a period of days or weeks. While in no instance was there any reason to suppose that the injections did harm, in none had he been able to see that any benefit resulted. In some cases, it was true, there occurred a drop in the temperature, but he had found that this not infrequently took place, whether the antitoxin were given or not, and believed that it was simply a part of the natural course of the disease. The thing which had really appeared to give relief in this malady was double lumbar puncture, and as a result of this procedure he had in a number of instances observed a reduction in the pulse and respiration and amelioration of the nervous symptoms. Within the past month he had not used diphtheria antitoxin in any new case, though it was still being kept up in a few cases at the hospital in which it had been commenced some time ago.

DR. FRANK GRAUER said that within the last five weeks he had employed diphtheria antitoxin in five cases of cerebrospinal meningitis, but without any benefit whatever. All these patients he had seen early, within twelve or eighteen hours. While five cases were, of course, too small a number upon which to base any positive conclusions, he could not but feel that in some of them at least there should have resulted a certain amount of improvement if this treatment were of any value. Of two cases in which the antitoxin was not given, but which were treated symptomatically, one had already recovered, and the other was now well on the road to recovery.

DR. E. LIBMAN did not consider that Dr. North had offered any proof whatever that the organisms of diphtheria and cerebrospinal meningitis were antagonistic. The great problem we have to solve, he thought, was the devising of some method for preventing epidemics of the latter disease, and he believed there was some ground for supposing that by proper attention to the nose and throat this might possibly be accomplished.

DR. WILLIAM H. THOMSON said that in his recent service at the Roosevelt Hospital he had had 30 cases of epidemic cerebrospinal meningitis, all in adults. In the first series of these 30 cases no less than 14 out of 16 patients died, while of the remaining 14 cases only 2 proved fatal. Yet in all the 30 cases the treatment was practically identical. It was worthy of note also that in his pneumonia cases an exactly corresponding condition of affairs was observed. The explanation of this remarkable circumstance he believed lay in the fact that there is a very pronounced difference in the severity of a disease at different periods dependent on whether the case occurs in the height of an epidemic or during its decline.

DR. WOLFF, in closing the discussion, said that as the result of his laboratory observations he had been led to suggest that diphtheria antitoxin might possibly be of value in epidemic cerebrospinal meningitis. The enthusiastic reports which he had received from a number of clinicians had afforded some ground to suppose that this might really be the case. New treatments in such very grave affections as this were apt, however, to be received with enthusiasm at first, and it might be that after all this method would prove a failure. Still, he thought any final judgment in regard to it should be suspended until a larger body of statistics was at our disposal. From such statistics as he had been able to secure there seemed ground for believing that this treatment did accomplish something, and if it should be found, on adequate trial, that even a small amount of benefit resulted from it in a disease which had baffled our best skill, this would certainly be a point gained.

THE NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, APRIL 20, 1905.

DR. GEORGE L. PEABODY read a paper entitled

THE TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS WITH INJECTIONS (CHIEFLY INTRASPINOUS) OF DIPHTHERIA ANTITOXIN.

When, he said, Dr. Wolff of Hartford made known in January last that he had discovered a pronounced antagonism between the Klebs-Lœffler bacillus and the meningococcus, New York was in the midst of the most severe epidemic of cerebrospinal meningitis that most of the physicians of the present day had ever seen. Notwithstanding that they knew a little more of the cause of the disease than their predecessors, and had ascertained that in the present epidemic the meningococcus was the sole exciting agent, they felt themselves as helpless to cope with it as those predecessors had been. Under such circumstances it seemed justifiable to try the diphtheria antitoxin, and while, indeed, there did not appear to be much ground to hope for success, it was felt that at least no harm would result. Accordingly, in the Roosevelt Hospital, Dr. A. Jacobi and he had subjected twenty-two cases to the action of this agent.

In all but one of these the diagnosis was proved by the detection of the meningococcus in the spinal fluid, while clinically they were all unmistakable cases of cerebrospinal meningitis. Most of the patients were under eighteen years of age. A considerable proportion of them were young children, and only a few were twenty years or older. Many of them came under treatment early in the disease, before marked changes could have occurred. All were subjected to spinal puncture, and in every instance cerebrospinal fluid was withdrawn. Sometimes, but by no means always, this was under abnormally high pressure. The fluid was usually turbid and distinctly purulent, and in every case but one it contained the meningococcus. One of the patients received his first injection of diphtheria antitoxin on the first day of the disease; five on the second day; six on the third day; four on the fourth day; and others on the fifth, sixth, and later days. The amount of fluid removed by tapping varied, depending on the degree of pressure. Usually no marked symptoms followed this procedure, but in one instance, where six fluidrachms were removed, a transient condition of collapse resulted.

Of the twenty-two cases, four received the antitoxin only subcutaneously, seven received it both subcutaneously and intraspinously, and eleven received

it only intraspinously. In only one case did it have any untoward effect. This patient, a girl of fifteen, suffered from an urticaria which lasted seven days. She made a good recovery from the disease. The doses of antitoxin varied from 1,200 to 15,000 units. Only two patients received but a single dose. In all of the other cases it was repeated at least once, and in some the antitoxin was given four, five and six times. Of the twenty-two cases, eleven have died, making the mortality to date 50%. In seven of the fatal cases death occurred before the sixth day of the disease. Of the eleven dead, one patient received the antitoxin on the first day of the disease; three on the second day; two, on the third day; three, on the fourth day; and only two later than the fourth day. Of the eleven surviving, two are entirely well; two are fully convalescent; five are still under treatment, with active symptoms and very grave prognosis; and two may be said to be practically moribund. Thus, to date, the percentage of recoveries in the twenty-two cases is only a little over nine, while the mortality, although still undetermined, will go well beyond 50%.

Dr. Peabody said he was well aware that these figures were far too small to justify any statistical deductions, but it certainly was a fact that it had not seemed to any of those who had watched these cases that any influence, whether for good or evil, was to be ascribed to the use of diphtheria antitoxin in them.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Stated Meeting Held Jan. 31, Feb. 1 and 2, 1905.

(Continued from No. 16, p. 464.)

Second Day.— (Continued.)

A RESOLUTION FROM THE COMMITTEE ON LEGISLATION.

Dr. Frank Van Fleet of New York presented the following resolution in behalf of the committee:

"Whereas, information from reliable sources has been obtained that certain opticians, forming the New York Optical Society, contemplate the introduction of a bill into the legislature, 'defining and regulating the Practice of Optometry,' which is designed to confer on these opticians the right to employ lenses as therapeutic agents for the relief of symptoms which may or may not be due to defective eyes; and

"Whereas, information from other and equally reliable sources is received that certain people employing as therapeutic agents methods which have been given the names of massage, mechanoneural somatopathy, therapeutic gymnastics, Swedish movements, osteopathy, seismatherapy, vibration, vibrassage, and other terms, desire at the hands of the Legislature the legal right to diagnosticate and treat disease of the human body.

"Whereas, we believe that the greatest latitude, consistent with necessity and the proper protection of the people, should be given all who practice the healing art, and that the medical laws of the State of New York are elastic enough to permit the practice of any and all methods which have been or can be desired for the prevention or relief of disease;

"Therefore, be it resolved that the Medical Society of the State of New York deprecates these efforts of incompetent people to secure the privilege to prey upon the community, and respectfully petitions the Legislature to refuse to sanction any efforts such as these herein enumerated.

"Resolved, that the Medical Society of the state of New York petitions the Legislature to refuse to enact any laws which will in any way discriminate either for or against any class of people who claim to have any peculiar methods which may or may not be valuable for the treatment of disease, or of errors or anomalies of the human body."

THE NON-SEQUITUR IN MEDICINE.

Dr. Henry A. Fairbairn of Brooklyn said that there had always been a tendency to accept theory rather than fact as the basis of supposed medical progress. Speculating with facts had led to fallacy. Exact knowledge of facts, laws and approximate causes would evolve unity and a firm basis of procedure.

POISONING BY POTASSIUM BICHROMATE.

Dr. Francis Eustace Fronczak of Buffalo said that less than six cases of poisoning from this agent were to be found in medical and medico legal literature. He then related the case of a woman whose life had been attempted by mixing a large amount of potassium bichromate with a mixture of wine and alcohol. The woman seemed to have taken over 100 gr. of the substance. The usual dosage was $\frac{1}{4}$ to $\frac{1}{2}$ a grain. The toxic dose was considered to be only a few grains. In this case the woman recovered and it seemed that the wine and alcohol had exerted a neutralizing effect.

THE ETIOLOGY OF HYPERTROPHIED PROSTATE.

Dr. L. Bolton Bangs of New York read this paper. He said that this subject occupied a very important place in the surgical mind, not only because of the prevalence of the malady, the proportion being one man in every two after the age of fifty, as established by Sir Henry Thompson's statistics which had not yet been controverted, but also because of the impetus given the surgical treatment by the clinical and experimental observations of the last five or eight years. The surgical measures had been perfected and the death-rate gradually reduced, but the latter was still great enough to be an important factor when considering what should be done in a given case. The object of his paper was to get at a reasonable theory as to the cause of this condition, and he hoped that deductions might be made which in the future might prevent the frequent occurrence of this trouble. Long ago Hunter advanced the theory that prostatic enlargement was of inflammatory origin. Although many theories had been advanced since that time none were satisfactory to the scientific mind. In 1863 Virchow asserted the belief that the process was an inflammatory one beginning in the glandular part of the gland and extending thence to the stroma; this view was supported by histological investigation. The view that this enlargement of the prostate was a senile process due to general arterio-sclerosis had been disproven. He gave his adherence to the theory of the inflammatory origin of the process and his deductions were drawn from clinical observation. He had made careful records and analyses of over three hundred cases of unmistakable hypertrophy of the prostate which had led him to conclude that it was the mode of life of the individual that had much to do with the origin of this affection. Over 85% of his cases were subject to abnormal or unphysiological sexual indulgences which were excessive in degree and continuous for years. In the remaining cases no history of sexual aberration was present; the primary prostatic congestion was apparently due to a derangement of the portal circulation. The preponderance of testimony among American and foreign writers favors the inflammatory origin of the disease. He had concluded that while gonorrheal infection might be a factor in the production of this enlargement there must

be some other additional cause. Hypertrophy of the prostate frequently occurred in men who had never had gonorrhea. In his opinion hypertrophy of the prostate was not a senile disease; it began in early life and was present when least suspected; the changes in the gland were coincident to the active life of the testes and vasa deferentia; certain urinary phenomena and obstruction were even preceded by symptoms of irritation of the prostate and neck of the bladder which were purely congestive in their nature, but were the prodromata of coming events. Dr. Bangs outlined the order of events occurring in enlargement of the prostate and said that his views were confirmed by Greene and Brooks in their article on the nature of hypertrophy of the prostate. This inflammatory process might be latent for years. The point of origin seemed to be in the urethra with extension along the gland ducts from the urethra towards the periphery of the prostate, the changes being most marked in the vicinity of the vera motanum and prostatic urethra. He had noticed the excess of sensibility in young men and youths in the process of examination. He found it most marked in masturbators, subjects of conjugal onanism and those who practiced the sexual act abnormally. From the age of puberty onward the sexual nerve centers were often stimulated and they in turn reacted upon the prostate and sexual activity became more aggravated. Certain prophylactic deductions were reasonable and logical, such as sexual instruction in boyhood, chastity in youth, self restraint and temperance in early manhood and physiological relations in married life.

SOME OBSERVATIONS ON THE TECHNIC OF PERINEAL PROSTATECTOMY.

DR. GEORGE R. FOWLER of Brooklyn said that the total removal of a large prostate through the suprapubic route was possible but the ejaculatory ducts could not well be spared. There were cases in which the perineal route was best suited. More manipulative skill was needed in operating by the perineal route. It might be done under general anesthesia, or under spinal anesthesia, and Tinker had done it under intraneural injections into the pupendal nerves. Drainage was best effected by the perineal route. The capsule could be entered almost anywhere and a relatively complete prostatectomy could be performed without entering the urethra. When there was blaeding the wound should be packed, but drainage should be avoided. If traction was properly applied it was not necessary to make pressure from the rectum, as was frequently necessary when the suprapubic route was used. One of the most important points was to get the patient out of bed as soon as possible, as this facilitated drainage and prevented difficulties from infiltration of urine and greatly encouraged the patient. A drainage tube should not be allowed to remain longer than forty-eight hours after operation and it was important to change dressings frequently.

PERSONAL EXPERIENCE IN PROSTATIC SURGERY DURING THE LAST TWO YEARS.

DR. WILLY MEYER of New York said that each of the three methods had their uses, and it was highly important that the surgeon should individualize and choose that procedure which was most appropriate for the case in hand. It was possible to preserve the sexual power by either the perineal or suprapubic route. If operation was refused we might use the Bottini method. He thought the patient ought never to be condemned to catheter life unless he absolutely refused the knife. A patient should not be allowed to practice catheterization unless he was well to do and was properly instructed as to how to avoid infection.

SUPRAPUBIC PROSTATECTOMY.

DR. HOWARD LILIENTHAL of New York reported a series of 31 cases in which the suprapubic route had been used without one fatality. There had been loss of function in only two cases. The sexual power had been lost in no case in which it had been present before operation. Dr. Lilienthal had performed most of his operations on feeble patients who were advanced in years. The patient was prepared for operation by this method by beginning two or three days before operation to empty the bladder every three hours, day and night, by means of a catheter. Salol was administered in 5-gr. doses. Urotropin was given after the operation. He made an incision through the abdominal wall two to two and one half inches long. The bladder was punctured and any stones present were removed. Care was taken not to tear the prostatic mucous membrane. If there was abundant hemorrhage strips of gauze were placed in the bladder to encourage clotting. The patient was kept dry by siphonage and was usually out of bed on the second or third day. He named as advantages of this operation the fact that the field of operation was open to the direct vision of the operator so that any cause of obstruction could be easily observed. Shock was entirely absent and where there was infection of the upper urinary tract the operation could be performed in two stages. This was also the quickest method of operation and there was the least loss of blood; these were important points in the aged.

PROSTATISM WITHOUT PROSTATIC ENLARGEMENT, ITS DIAGNOSIS AND TREATMENT.

DR. CHARLES H. CHETWOOD of New York said that it was possible for the train of symptoms usually attendant upon enlarged prostate to be present without actual enlargement. When urgency and frequency of urination with pain during and after the act and partial or complete retention of urine, and the person was past the age of fifty, an obstructing prostatic hypertrophy was suggested. He had described this condition under the caption "Contracture of the Neck of the Bladder." The pathological basis of the condition seemed to be a fibroid stenosis of the vesical orifice and was due to a deposit of inflammatory exudate. It was quite frequently of gonorrheal origin and was found in the young as well as the aged. The blocking of the urinary passages might eventually lead to pyelonephritis. His method of relieving this condition was by means of the galvanocautery introduced through a perineal incision. He presented an instrument which he had devised for this purpose. This method was better than incision into the stenosed ring as that was likely to be attended with severe hemorrhage.

(To be continued.)

Recent Literature.

Practical Manual of Diseases of Women and Uterine Therapeutics. By H. MACNAUGHTON-JONES, M.D., M.Ch., Master of Obstetrics (*Honoris causa*), Royal University of Ireland; Fellow of the Royal Colleges of Surgeons of Ireland and Edinburgh, etc. Ninth edition. New York: William Wood & Co. 1905.

This is an encyclopedic work of 1,044 pages, with 637 illustrations and 122 plates. The author states in the preface that his aim has been to give a reliable digest of practice, and at the same time to embrace those pathological researches on which alone a sure foundation of

clinical treatment is based. By visiting the clinics of his confrères at home and on the Continent, and by an exhaustive study of the recent literature he has put himself in possession of most that is new in gynecology and has embodied it with great judgment in this edition. It is one of the few examples of an old book well brought up to date.

The bulk of the volume might be reduced to advantage by omitting many of the illustrations of giant myomas and a multiplicity of instruments, some of them antiquated and others of questionable value, and something is lacking in the photographic delineation of the steps of operative procedures when compared with our recent American textbooks.

On the whole, this should prove to be a valuable reference book to any conservative practitioner.

Physiological Economy in Nutrition. By RUSSELL H. CHITTENDEN, Ph.D., LL.D., Sc.D., Director of the Sheffield Scientific School of Yale University and Professor of Physiological Chemistry. New York: Frederick A. Stokes Company. 1904.

Professor Chittenden has gathered in this volume the results of his studies on the nutrition of soldiers, students and professional men, carried on in Yale University during the past two years. In the introductory chapter several standard dietaries are cited, including the famous Voit standard consisting of 118 gms. proteid, 56 gms. fat and 500 gms. carbohydrate, with a fuel value of 3,000 calories, as the food required daily by a man doing moderate muscular work. These standards are criticised as being merely statements of the dietetic habits of the people investigated, and not necessarily representing the real needs of the body. If the "standard" amounts of food are too large, there may be a physiological economy with a more restricted diet, and a gain to the body from diminished loss of energy in ridding the body of the excess.

The experiments were undertaken to test the possibility of a physiological economy of nutrition, and with special reference to the minimal proteid requirement in health and normal living. Five professional men, thirteen representatives of the United States army, and eight Yale athletes served as subjects for the investigation. The observations were carried on for at least six months and in some cases eighteen months.

The professional men reduced their proteid intake to one half or one third the amount required by the standard dietaries, lowered the caloric value of the food to 2,000 and 2,500 calories, and did their daily work with uninterrupted health and vigor, indeed, in some cases with improved bodily conditions. The men from the United States army, representing moderate manual labor, confirmed in all respects the results obtained in the professional men. The soldiers metabolised less than 50 gms. of proteid and found 2,500 to 2,600 calories ample for their daily requirements. Some of these men, living on the low proteid diet, more than doubled their strength tests between October and April, increasing in one case from 2,504 units to 5,178, and in another case from 2,835 to 6,269. Much of this increase was undoubtedly due to gymnasium training, but the results contributed by the athletes, already trained in the gymnasium, prove that the diet itself may also have been effective. These athletes for a period of five months reduced their proteid intake more than 50%, not only without loss of bodily strength, but with marked improvement of muscular power. In one case on 46.4 gms. proteid daily the strength test increased from 4,548 in January to 5,667 in June, in another case, from 4,584 to 5,917, and there was testimony to greater freedom from fatigue on the low proteid diet.

Tables presenting full analyses of food and excreta for each individual fill a large part of the volume. The physical condition of the men is shown by photographs. Professor Chittenden concludes with a discussion of the value of physiological economy of nutrition, especially in saving the body of the labor ridding itself of possibly harmful nitrogenous waste; and he also calls attention to the economic and sociological importance of his results. The book is an excellent example of a thorough-going scientific investigation of a problem of great interest to both physicians and laymen.

Influence of Growth on Congenital and Acquired Deformities. By ADONIRAM B. JUDSON, M.D. Wm. Wood & Co.

This excellent work is a collection and elaboration of some of Dr. Judson's publications, investigations and essays. Dr. Judson has been so long an intelligent and scholarly writer and worker in the field of orthopedic surgery that whatever he writes is worthy of the most careful attention. His work on the deformities following hip disease and their demonstration, and on congenital club foot with reference to the proper appliances, are of especial value to all students. The publication shows thought and scholarly attention and is deserving of the consideration and study of all who are interested in the subject.

Chirurgie Orthopedique. By PROFESSOR BERGER and DR. BANZET. Paris: G. Steinheil.

This excellent work on "Orthopedic Surgery" illustrates the condition of the art and practice of orthopedic surgery in France in an admirable manner. The text and illustrations are decidedly in advance of what is ordinarily seen in the publications on orthopedic surgery. Those illustrating the transplantation of tendons, congenital dislocation of the hip, and spastic operations are especially to be commended. The text is full and clearly written. Much attention is paid to lateral curvature and to the other important deformities, but like most Continental writing in this department, tuberculous disease of joints and the resulting deformities are not treated nor is Pott's disease. The book is perhaps too large for a student's handbook, but of great value to the experienced practitioner and specialist.

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APOPLEXY AND ITS PREVENTION.

IT is becoming something of a platitude to say that the modern tendency in medicine is toward the prevention of disease. The most noticeable progress in this direction has naturally been made in those afflictions regarding whose etiology we have come to have definite knowledge, and it is possible to predict that the various infectious diseases, among which tuberculosis may be included, will yield before long to the efforts of preventive medicine, as some have practically already done. When, however, one turns to the chronic degenerative conditions, observed more particularly toward middle and later life, one finds that the doctrine of preventive medicine has gained comparatively little hold upon the popular mind. It is, however, clear that very much may be done in the prevention of many of the most fatal diseases of advancing years were we to recognize sufficiently early tendencies leading toward such disastrous conditions.

Prof. Clifford Allbutt has rendered a service in this direction by calling attention, in a recent address before the Bristol Medico-Chirurgical Society, to some of the causes of apoplexy, published in the Bristol *Medico-Chirurgical Journal*. He combats the somewhat fatalistic idea of disease which we have received from our forefathers, and urges that, even in a condition of such onset as apoplexy, our duty as physicians is to look into the causes which may lead up to this outcome in later life. He would go further than the mere demonstration that granular kidneys, damaged arteries and abnormal heart are precedent conditions, and would question how it comes to pass that these abnormalities exist in an otherwise healthy individual. Clearly it is a matter of extraordinary gradual progress, and one which may not be fully estimated unless it is possible to make observations extending over many years of the patient's life. Our knowledge of the immediate causes of so-called apoplexy are evidently approaching completeness, although it is a somewhat striking fact that the general practitioner of medicine rarely distinguishes between those varieties of apoplexy which are brought on through a weak heart and poor circulation from those dependent upon an hypertrophied heart with good circulation. The first lesson to be learned is to distinguish between cerebral hemorrhage and cerebral softening, and this may undoubtedly be done in a majority of cases by a careful study of the circulatory apparatus of the patient. Embolism as a chance accident must also naturally be taken into account, and this again is not a difficult matter to determine.

Professor Allbutt, however, is not concerned so much with these recognized causes of the final catastrophe as with the distant conditions which may lead up to it. Recognizing as he does the alterations of the arteries in advancing years, and the various conditions to which we have alluded, he is inclined, and we think with justice, to lay particular stress upon the condition of the peripheral circulation, irrespective, in a measure, of the actual disease of the vessel walls. The essential matter for the physician to bear in mind, therefore, is that the precedent rise of mean arterial pressure is always to be regarded as a warning, and yet it is just this rise of pressure which is ordinarily overlooked to the detriment of the patient. It is evident that a rise of blood pressure in youth is far less significant than in the middle-aged, and that it is frequently dependent upon relatively trifling causes, subsiding with the removal of those causes. On the other hand, the persistence of high blood pressure in persons after forty indicates trouble which is not likely to be removed as the years advance, and which should be a forewarning of the possibility of a fatal rupture later on in life. Allbutt has claimed that arteriosclerosis as distinguished from the sclerotic degeneration of senile involution is not to be regarded as the cause, but as a consequence of the rise of the arterial pressure; hence prevention of apoplexy must first of all take into account the blood pressure.

As a matter of routine, therefore, it is advised that every adult of forty or over should have as accurate a determination made as possible of his

mean blood pressure, and that such an examination should be repeated at intervals of a few years up to the age of sixty, when, if no marked increase be observable, the danger of apoplexy is reduced to a minimum. That such a procedure is difficult to carry out in the individual case is evident, but we have no question that it might be done far more generally than is at present the case were its significance fully appreciated. Evidently, the recognition of a disturbed circulation at the relatively early age of forty may lead to a readjustment of the life of the individual in such a way that the dangers of circulatory breakdown later on may be greatly lessened if not wholly obviated. In any case, knowledge of the circulatory tension is undoubtedly an indication for treatment which should not be neglected.

Attention should certainly be given to these suggestions of Professor Allbutt. They are perhaps not original, but a reiteration of a generally accepted though not generally practised method in medicine is eminently desirable. With the general carelessness in methods of life, and particularly in the taking of food, which now prevails, it is clear that a warning cannot be made too often of the dangers likely to result therefrom. It is also becoming increasingly evident that the blood pressure in peripheral arteries is a criterion of no mean value in the determination of the far-reaching influences of continued abuse. We have no doubt whatever that many cases of apoplexy might be averted or at least deferred were the intelligent physician's attention drawn early enough to the warnings which were apparent, had he taken the trouble or been given a sufficient opportunity to investigate.

LUMBAR PUNCTURE.

The recent appearance of epidemic cerebrospinal meningitis in various parts of the country has attracted renewed attention to the operation of lumbar puncture. The general use of this procedure for diagnostic purposes in various diseases of the nervous system, other than meningitis, has also led to its frequent use. With the advent of such a method of obtaining information or as a means of therapeutics, the question naturally arises again as to the harmlessness of the procedure. The general opinion is certainly gaining ground that, properly performed under aseptic precautions, the operation is trivial and should give rise to no symptoms of importance. On the other hand, an occasional fatal outcome, observed particularly in conditions of intracranial pressure originating in the posterior fossa of the skull, has led in certain minds to a scepticism regarding the general use of the method.

In connection with a paper recently read before the Berlin Society for Psychiatry and Neurology on the Chemical Investigation of the Spinal Fluid, an interesting discussion was aroused on the subject of lumbar puncture which brought out considerable diversity of opinion. Oppenheim, referring to some observations of Nissl, pointed out the necessity of determining the character of the symptoms which he thought were often well marked, excited by the puncture. Remak in general agreed with Oppenheim and had reached the conclusion that lumbar puncture as a diagnostic measure had been somewhat overdone. Ziehen, on the other hand, considered that a careful lumbar puncture was a practically safe procedure, but he admitted the desirability of informing the friends of a patient that such an operation was to be undertaken and that a slight amount of danger was associated with it. He also urged that but five or ten ccm. of fluid should be withdrawn. Siemerling and Alzheimer have also drawn attention to the complications which may result, and Fürstner has warned against the use of lumbar puncture by physicians, considering it a surgical measure. Mendel has expressed himself in a similar way. Finally Gerhardt, in introducing the subject for discussion at a meeting held last year, urged that lumbar puncture should not be practised in any case in which brain tumor was suspected. He had been able to collect twenty-six deaths from the literature, to which, no doubt, many unreported cases might be added.

It is certainly timely to call attention to the opinions of such men as we have briefly quoted above regarding a procedure which is apparently coming to be used as a somewhat routine measure. That its positive danger is small if the puncture be properly performed is not to be questioned. On the other hand, the evidence is sufficient to show that the operation should not be intrusted to wholly inexperienced hands and that precautions should be taken in every detail if untoward symptoms are to be wholly avoided.

CONFEDERATION OF LONDON MEDICAL SOCIETIES.

A familiar discussion is now taking place in London which demonstrates that the organization of medical societies presents difficulties

which are general and not local. The same arguments are being used for and against a consolidation of societies as were employed in this city a year or two ago in connection with the same problem here, with results which are likely also to be essentially the same. The whole difficulty appears to have been aroused through the inevitable increase of specialism whereby original medical societies of general scope have been broken up into sections which have temporarily lost their coherence. The attempt is, therefore, now being made in London, as it has been here, and also elsewhere, to concentrate the interest of medical men in a general medical society, which in London, it is suggested, shall be called the Royal Society of Medicine or the Academy of Medicine, wherein shall be represented as sections the various specialized departments of medicine. Recently the discussion appears to have assumed a more harmonious tone, proposals for federation having supplanted earlier propositions for fusion or absorption, with loss of identity and sacrifice of funds; the *Lancet* hopes that the unanimity now prevailing may not be disturbed by minor details.

MEDICAL NOTES.

INVESTIGATION OF PLAGUE. — Dr. C. J. Martin has been appointed to study plague in India. Dr. Martin is director of the London Lister Institute.

MEMBERSHIP OF THE NEW YORK ACADEMY OF MEDICINE. — It is announced that the New York Academy of Medicine now has one thousand members, and, since this is the limit set, there will hereafter be a waiting list.

HONORARY DEGREES FOR PHYSICIANS. — Mr. William Watson Cheyne, Professor of Surgery at King's College, London, Dr. John Hughlings Jackson, Dr. Augustus D. Waller, and Sir Richard Conan Doyle have been given the degree of LL.D. by the University of Edinburgh.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, April 26, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 30, scarlatina 27, typhoid fever 15, measles 19, tuberculosis 33, smallpox 0.

The death-rate of the reported deaths for the week ending April 26, 1905, was 17.24.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 22, 1905, was 214, against 233 the corresponding week of last year, showing a decrease of 19 deaths, and making the death-rate for the week 18.17. Of this number 104 were males and 110 were females; 212 were white and 2 colored; 132 were born in the United States, 81 in foreign countries, and 1 unknown; 41 were of American parentage, 149 of foreign parentage, and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 32 cases and 4 deaths; scarlatina, 27 cases and 1 death; typhoid fever, 9 cases and no deaths; measles, 12 cases and no deaths; tuberculosis, 42 cases and 22 deaths; smallpox, 2 cases and no deaths. The deaths from pneumonia were 36, whooping cough, 1, heart disease 26, bronchitis 9, and marasmus 2. There were 8 deaths from violent causes. The number of children who died under one year was 34; the number under five years 48. The number of persons who died over sixty years of age was 66. The deaths in public institutions were 55.

During the week there were 15 cases reported of cerebrospinal meningitis and 7 deaths.

APPOINTMENT OF A MEDICAL EXAMINER FOR SUFFOLK COUNTY. — The nomination by the Governor of Massachusetts of Dr. William G. Macdonald to be medical examiner for Suffolk County has been confirmed by the Council. Dr. Macdonald's age considered in connection with his previous "conditions of servitude" were not regarded by many most qualified to judge as recommending him for this important position. Others than Dr. Osler would not consider the period beyond the fifty years as a time to begin training for new work. However this may be, there are exceptions to all rules, and we indulge the hope that the future will convince us we were unconsciously portraying Dr. Macdonald in our editorial of April 13 issued before the nomination was made.

NEW YORK.

BEQUEST. — The New Rochelle (Westchester County) Hospital has received the sum of $5,000 from the estate of the late Adrian Iselin, whose country home was near New Rochelle.

DAY NURSERIES AND CONTAGIOUS DISEASES. — In an address before the Federation of Day Nurseries on April 12, Health Commissioner Darlington made the statement that a large percentage of the contagious diseases in the Babies' Hospital came from day nurseries, and he strongly urged that every such institution should have an examining physician, or at least a trained nurse, in attendance.

Hospital for Contagious Diseases. — The contract has just been awarded by the national government for the construction of an island in New York Harbor on which is to be built a fine hospital for contagious diseases in connection with the Ellis Island immigrant station. The new island, the area of which is to be four and three-fifths acres, will be located just west of Ellis Island, from which it will be separated by 250 feet of water.

Efficiency of School Fire Drill. — On two occasions during the past week the efficacy of the fire drill for the children of the public schools has been strikingly demonstrated. One of the fires was in public school No. 3, Hancock Street, Brooklyn, and in four minutes 2,500 children filed safely out of the building. The other fire was in school No. 122 at North Street and First Avenue, Manhattan, and 1,800 children marched out. Fortunately, neither of these fires proved serious, but a short time ago when the Grove Street schoolhouse was completely consumed, equal success was shown in getting a very large number of children out of the building in admirable order and with an entire absence of panic.

Officers of County Branch of State Medical Association. — At the annual meeting of the New York County Branch of the State Medical Association, held April 17, the following officers were elected for the ensuing year: President, Dr. Francis J. Quinlan; First Vice-President, Dr. John A. Bodine; Second Vice-President, Dr. H. H. Seabrook; Recording Secretary, Dr. Wm. R. Stone; Corresponding Secretary, Dr. Charles G. Child; Treasurer, Dr. Charles E. Denison. The majority of these were re-elections.

Clinic for Treatment of Pulmonary Diseases. — Commissioner Darlington has issued a statement to the effect that the clinic of the Health Department for the treatment of communicable pulmonary diseases has successfully passed the experimental stage, and has proved a most valuable aid in the department's campaign against tuberculosis. The clinic, occupying a building erected especially for it, adjoining the department's main offices, was opened on March 1, 1904, and during its first year there applied for treatment 5,400 patients, making 13,740 visits to the clinic, a daily average of 44 patients. Of this number, 527 were placed in hospitals and sanatoria, and 610 patients are now under treatment at the clinic. It is the intention of the department to open a clinic on similar lines in the Borough of Brooklyn, about the first of May, and a building on Henry Street has recently been leased for the purpose.

American Physical Education Society. — The annual meeting of the American Physical Education Society was held at the Teachers' College, Columbia University, on April 17, 18 and 19. Among those who read papers were Dr. Luther H. Gulick, director of physical training in the New York public schools, who is the President of the Association, Dr. Dudley Allen Sargent of Harvard, Dr. Henry Ling Taylor of New York and Dr. George L. Meylan, director of the Columbia University gymnasium. On the last day of the meeting a lecture was given by Dr. R. Tait McKenzie, with illustrations by himself and the jiu-jitsu expert, John J. O'Brien, Ex-Inspector of Police of Nagasaki.

Apportionment of Collection of Hospital Saturday and Sunday Association. — On April 18, the distributing committee of the Hospital Saturday and Sunday Association met in the Mayor's office and made the apportionment of the annual collection among the various hospitals represented in the association, on the basis of the amount of free work done by each institution during the year 1904. The total amount for distribution of the undesignated fund, after the deduction of expenses, was $76,000 this year, and the hospitals receiving over $2,000 were the following: Montefiore Home and Hospital for Chronic Invalids, $7,600; Mount Sinai Hospital, $5,059; St. Luke's Hospital, $4,570; German Hospital and Dispensary, $4,397; Roosevelt Hospital, $3,941; Nursery and Child's Hospital, $3,879; Lebanon Hospital, $3,682; Lincoln Home and Hospital (colored), $3,654; Hospital for Ruptured and Crippled, $3,569; New York Post-Graduate Hospital, $3,036; New York Infant Asylum, $2,861; St. Mary's Free Hospital for Children, $2,512; Home for Incurables, $2,310; Sloane Maternity Hospital, $2,038. The smallest amount apportioned, was $250, and this sum was given to each of the last three hospitals on the list.

Miscellany.

DINNER IN HONOR OF DR. GRENFELL.

On April 14 a dinner was given in New York in honor of Dr. Wilfred T. Grenfell, who has accomplished such admirable work in Labrador. On Sunday, the 16th, Dr. Grenfell delivered an address at a public meeting for men, in the

Majestic Theatre, on the subject, "My Life among Arctic Fishermen." It is stated that when he returns to Labrador in May, he will take with him about $60,000 collected in the United States and a substantial contribution from Andrew Carnegie for the establishment of loan libraries along the coast; also that he will be accompanied by two young women who have volunteered their services as settlement workers, and who will pay their own expenses. Both have had considerable experience fitting them for work in the Labrador mission, one of them being connected with the New York Tenement House Department and the other with the Protestant Episcopal Church of the Land and the Sea.

TYPHOID FEVER IN RELATION TO THE URBAN AND RURAL POPULATION OF THE UNITED STATES.

SENECA EGBERT (Philadelphia) shows by reference to the United States Census Report on Vital Statistics for 1900, and by means of graphic charts illustrating the numerical data of this report, that typhoid fever is much more prevalent in the rural portions of the country. He attributes this high incidence of the disease to the unsanitary conditions prevalent in the many towns and villages that, being under 8,000 in population, are too small to be classed with the urban and which, therefore, make up a large part of the so-called rural population. He concludes: (1) Popular education as to the causation and dissemination of typhoid fever and similar maladies is especially important in the localities and districts indicated by the charts. (2) It is the duty of physicians to impress upon their typhoid patients the importance and necessity of disinfection measures, not only during but also long after convalescence. (3) The profession should urge improvement, purification and care of public water supplies, and should induce those depending on private or suspicious sources to protect themselves against the danger of infection. (4) The profession should work for uniform and satisfactory registration laws and methods, as these always reflexly foster improvement in sanitary conditions. —*American Medicine*, April 22, 1905.

CEREBROSPINAL MENINGITIS IN NEW YORK.

THE epidemic of cerebrospinal meningitis appears to show no signs of any marked abatement in the near future. During the week ending April 15, the official record was 117 deaths from it, as against 110 deaths in the preceding week. In the week ending April 22, however, the number decreased to 104. In the epidemic of last spring the maximum mortality in any one week (which was 90) was not reached until the middle of May. In a paper on the disease, read before the New York County Branch of the State Medical Association on April 17, Dr. Francis Huber stated that of 112 cases treated last year at the Gouverneur Hospital, no less than 74 proved fatal. Of the remaining, 28 recovered and 10 were discharged with chronic disabilities. At the meeting of the New York Academy of Medicine on April 20, when Dr. George L. Peabody read his paper in which the negative results obtained at the Roosevelt Hospital from the use of diphtheria antitoxin in cerebrospinal meningitis were reported, a similar experience was given by a number of representatives of the visiting staffs of prominent New York hospitals. Among these were Drs. Francis P. Kinnicutt of the Presbyterian Hospital, Henry P. Loomis of the New York Hospital, Dr. William K. Draper of Bellevue, Dr. Richard Van Santvoord of Harlem Hospital, and Dr. William M. Leszynsky of the Lebanon Hospital. It is stated that the health department's cerebrospinal meningitis commission has ascertained that it is possible for the meningococcus to be present in the cerebrospinal fluid without giving rise to meningitis or otherwise impair the health of the individual.

TAPEWORMS AND TUBERCULOSIS.

IT was recently published in the newspapers, as coming from the United States Consul at Vera Cruz, Mexico, to the effect that "the tapeworm is the natural enemy of tuberculosis, and that the latter cannot exist where the other is present." How much truth there is in this remarkable proposition may be judged from the evidence of Dr. A. A. Levy, who was recently resident physician at the Montefiore Home Country Sanitarium for Consumptives at Bedford Station, N. Y. He states that during his service there he observed a number of instances of tapeworm among the patients, and that in one case he succeeded in the complete removal of the parasite within twenty-four hours. This patient was a "positive" tubercular, the sputum showing on many repeated examinations the presence of the bacilli.

Correspondence.

SPLINT MATERIAL WANTED.

HAVERHILL, MASS., April 19, 1905.

MR. EDITOR: Some seven or more years ago an agent called at my office from whom I purchased a material for splints — in fact, bought a set of splints and some of the material as well. This was of unknown construction, brown in color, perforated. When placed in an oven it became soft and could be molded into any shape, hardening in a few minutes nearly as hard as plaster of Paris. I am of the impression it was made in Maine. It was the most satisfactory splint material I have ever found, but the agent has never called again nor have I been able to find the house that makes it after repeated inquiries in every direction. If any one can inform me where I can obtain the material or give me the address of the agent, I should deem it a favor.

Truly yours,
FRANCIS W. ANTHONY, M.D.,
Room 303, 50 Merrimack St.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 15, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York . .	3,908,644	1,529	468	27.34	18.77	2.09	.38	7.65
Chicago . .	1,990,750	548	172	34.48	15.33	.91	.73	.36
Philadelphia	1,407,968	517	129	25.73	12.76	2.32	4.06	.58
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	210	49	22.85	14.28	.47	1.42	.95
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	363,403	—	—	—	—	—	—	—
Cincinnati .	338,377	—	—	—	—	—	—	—
Milwaukee .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	68	21	13.24	13.24	—	—	5.88
Boston . . .	617,959	235	55	17.87	17.87	8.51	.42	2.13
Worcester . .	130,925	44	12	9.27	18.17	—	—	2.27
Fall River . .	119,349	36	15	13.88	25.00	—	—	2.78
Lowell . . .	104,409	36	17	19.44	22.21	—	—	5.55
Cambridge .	100,998	23	4	47.82	13.04	—	4.34	17.39
Lynn	73,875	20	8	30.00	25.00	—	—	10.00
Lawrence . .	72,548	20	9	23.33	23.33	—	—	10.00
Springfield .	72,020	18	2	11.11	5.55	—	—	—
Somerville .	70,413	12	2	16.67	33.33	8.33	—	—
New Bedford	68,863	22	8	22.72	—	—	—	—
Holyoke . . .	50,538	15	6	26.00	13.33	—	—	6.67
Brockton . .	49,601	14	2	7.14	—	—	—	—
Newton . . .	39,310	4	—	25.00	—	—	—	25.00
Haverhill . .	39,061	13	2	7.70	23.10	—	—	—
Malden . . .	37,305	5	2	—	—	—	—	—
Salem	37,188	16	1	12.50	—	—	—	6.25
Chelsea . . .	36,498	10	3	10.00	—	—	—	10.00
Fitchburg . .	36,325	9	3	11.11	22.22	—	11.11	—
Taunton . . .	34,577	12	3	8.33	16.67	—	—	—
Everett . . .	30,309	9	2	22.22	—	—	11.11	—
North Adams	29,301	9	1	—	11.11	—	—	—
Quincy . . .	26,798	9	4	—	55.55	—	—	—
Gloucester .	26,121	5	2	—	—	—	—	—
Waltham . .	25,797	5	—	20.00	20.00	—	—	—
Brookline . .	23,576	9	1	11.11	—	—	—	11.11
Pittsfield . .	22,870	7	—	14.30	14.30	—	—	—
Medford . .	21,956	4	1	—	—	—	—	—
Chicopee . .	21,692	8	4	25.00	12.50	—	—	—
Northampton	20,314	7	1	14.30	—	—	—	—
Beverly . . .	15,807	3	1	33.33	—	33.33	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	4	0	25.00	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,581	—	—	—	—	—	—	—
Hyde Park .	14,500	4	0	—	—	—	—	—
Newburyport	14,478	2	0	50.00	50.00	—	—	—
Woburn . . .	14,315	4	—	—	25.00	—	—	—
Melrose . . .	13,819	5	—	20.00	—	—	—	—
Westfield . .	13,809	3	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	3	0	33.33	—	—	—	—
Revere . . .	13,609	3	—	33.33	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . .	12,734	5	2	20.00	—	—	—	—
Southbridge .	11,716	1	—	—	—	—	—	—
Watertown .	11,575	2	1	50.00	50.00	—	—	50.00
Weymouth .	11,350	4	1	25.00	25.00	—	—	25.00
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,559; under five years of age, 1,013; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 859; acute lung diseases 583, consumption 413, scarlet fever 15, whooping cough 26, cerebrospinal meningitis 153, smallpox 1, erysipelas 20, puerperal fever 16, measles 30, typhoid fever 38, diarrheal diseases 86, diphtheria and croup 55.

From whooping cough, New York 8, Chicago 15, Philadelphia 2, New Bedford 1. From scarlet fever, New York 11, Philadelphia 2, Baltimore 2. From cerebrospinal meningitis, New York 117, Chicago 2, Philadelphia 3, Baltimore 2, Providence 4, Boston 5, Cambridge 4, Lawrence 3, Lowell 2, Lynn 2, and Worcester. Fall River, Holyoke, Salem, Chelsea, Newton, Brookline, Weymouth and Watertown 1 each. From erysipelas, New York 9, Chicago 3, Philadelphia 3, Baltimore 2, Boston 1, Everett 1, Marlborough 1. From smallpox, New York 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending April 8, 1905, the death-rate was 15.7. Deaths reported 4,688; acute diseases of the respiratory organs (London) 148, whooping cough 111, diphtheria 51, measles 189, smallpox 3, scarlet fever 26.

The death-rate ranged from 7.4 in Hornsey to 26.1 in Merthyr Tydfil; London 15.8, West Ham 15.2, Brighton 19.3, Southampton 16.8, Plymouth 8.5, Bristol 12.1, Birmingham 17.5, Leicester 13.3, Nottingham 17.4, Birkenhead 18.0, Liverpool 17.9, Wigan 21.1, Bolton 15.5, Manchester 17.2, Salford 17.6, Halifax 16.8, Bradford 15.5, Leeds 16.0, Hull 14.1, Sheffield 19.5, Newcastle-on-Tyne 17.2, Cardiff 12.7, Rhondda 12.5, Smethwick 12.5, Wallasey 10.0.

METEOROLOGICAL RECORD.

For the week ending April 15, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 9	29.88	46	60	32	50	37	44	W	S W	8	5	C.	C.	0
M.. 10	29.68	58	70	46	50	60	55	S	W W	19	6	C.	O.	0
T.. 11	29.69	49	59	39	100	100	100	N	E E	16	10	R.	R.	.68
W.. 12	29.78	46	51	39	92	90	90	N	S E	9	6	O.	F.	0
T.. 13	29.81	43	47	39	66	87	76	N	E N E	13	13	O.	O.	0
F.. 14	29.64	47	55	39	85	58	72	N	S	9	4	O.	C.	0
S.. 15	29.70	45	54	36	56	33	44	N W	N W	18	10	C.	O.	.02
Sum	29.74		57	39			67							.70

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Sum Means for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 12, 1905.

MEAD, F. W., surgeon. Granted leave of absence for six days from April 24. April 11, 1905.

CUMMING, H. S., passed assistant surgeon. Granted leave of absence for ten days from April 15. April 10, 1905.

FRICKS, L. D., passed assistant surgeon. Granted three days' leave of absence from April 3, 1905, under paragraph 191 of the regulations.

EARLE, B. H., assistant surgeon. To proceed to certain points in Oregon for special temporary duty. April 6, 1905.

STIMSON, A. M., assistant surgeon. Relieved from duty in the Hygienic Laboratory, and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty. April 7, 1905.

WIGHTMAN, W. M., assistant surgeon. Granted leave of absence for three days from March 18, 1905, under paragraph 191 of the regulations.

MULLAN, E. H., assistant surgeon. Relieved from duty at New York (Stapleton), N. Y., and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty. April 7, 1905.

DREW, A. D., acting assistant surgeon. Granted leave of absence for two days, March 8 and March 24, 1905, under paragraph 210 of the regulations.

FOWLER, J. B., acting assistant surgeon. Department letter of February 13, 1905, granting Acting Assistant Surgeon Fowler leave of absence for thirty days, revoked. April 7, 1905.

SAFFORD, M. V., acting assistant surgeon. To proceed to Portland, Me., for special temporary duty. April 7, 1905.

MCKAY, M., pharmacist. To report to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class. April 7, 1905.

WATTERS, M. H., pharmacist. Granted leave of absence for fifteen days from April 12. April 11, 1905.

PROMOTIONS.

T. D. BERRY, assistant surgeon. Commissioned (recess) as passed assistant surgeon, to rank as such from March 24. April 10, 1905.

A. J. MCLAUGHLIN, assistant surgeon. Commissioned (recess) as passed assistant surgeon, to rank as such from April 10. April 10, 1905.

APPOINTMENT.

DR. MARY A. ISRAEL appointed medical inspector for duty at Manila, P. I. April 6, 1905.

RECENT DEATHS.

DR. N. NEWLIN STOKES, of Morristown, N. J., died on April 19, aged seventy-two years. He was graduated from Jefferson Medical College, Philadelphia, in 1854. For many years he was a member of the Board of Managers of the New Jersey State Asylum for the Insane at Trenton, and at one time he was President of the Burlington County Medical Society.

DR. PATRICK J. LYNCH, of New York, died on April 22. He was born in Ireland in 1828, but educated in this country. He was graduated from the medical department of the University of the City of New York in 1857. Dr. Lynch was formerly prominent both as a physician and surgeon, and for many years had a very large practice, particularly among the Irish population. He enjoyed the distinction of being Chief of Clinic to the late Dr. Valentine Mott during the last seven years of that eminent surgeon's life.

ANTHONY LEOPOLD BROWN, M.D., M.M.S.S., died in Springfield, April 22, 1905, aged forty-two years.

FRANKLIN HALEY ALLEN, M.D., M.M.S.S., died in Haverhill, April 23, 1905, aged forty-nine years.

BOOKS AND PAMPHLETS RECEIVED.

Fourteenth Annual Report of the State Board of Medical Examiners of New Jersey. Trenton, N. J. 1904.

Life Insurance Examinations. A Manual for the Medical Examiner and for all interested in Life Insurance. By Brandreth Symonds, A.M., M.D. New York and London: G. P. Putnam's Sons. 1905.

Twenty-seventh Annual Report of the State Board of Health of the State of Connecticut for the year 1904, with the Registration Report for 1903 relating to Births, Marriages, Divorces and Deaths. New Haven, Conn. 1905.

Subdivisions of the Concrete Concept Area of the Human Cerebrum. By Charles K. Mills, M.D. Reprint.

Inaugural Address of the President of the New York County Medical Association. By Francis J. Quinlan, M.D., LL.D., Reprint.

Summary of the Annual Report of the Library Committee of the College of Physicians of Philadelphia for the year 1904.

Transactions of the American Ophthalmological Society. Fortieth Annual Meeting. Atlantic City, N. J. 1904.

Surgery of the Prostate, Pancreas, Diaphragm, Spleen, Thyroid and Hydrocephalus. A Historical Review. By Benjamin Merrill Ricketts, Ph. B., M.D. Cincinnati. 1904.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially prepared Original Articles on Treatment, Medicine, Surgery, Neurology Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J. Kelly, A.M., M.D. Vol. iv. Fourteenth Series. 1905. Illustrated. Philadelphia and London: J. B. Lippincott Company.

Uncooked Foods and how to Use Them. A Treatise on how to get the Highest Form of Animal Energy from Food. By Mr. and Mrs. Eugene Christian. New York: The Health-Culture Company. 1904.

The Ophthalmic Year-Book. A Digest of the Literature of Ophthalmology with Index of Publications for the Year 1903. By Edward Jackson, A.M., M.D. Illustrated. Denver, Colo.: The Herrick Book and Stationery Company. 1904.

The Medical Examination for Life Insurance and its Associated Clinical Methods with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D. Second Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

The Modern Mastoid Operation. By Frederick Whiting, A.M., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

The Craig Colony for Epileptics at Sonyea, in Livingston County, New York: The Eleventh Annual Report to the State Board of Charities. October, 1904.

Studies in General Physiology. By Jacques Loeb. The Decennial Publications. Second Series. Vol. xv, Parts I and II. Chicago: University of Chicago Press. 1905.

The History of Pediatrics and Its Relation to Other Sciences and Arts. By A. Jacobi, M.D., LL.D., and The Foundations and Aims of Modern Pediatrics. By Dr. Theodore Von Escherich. Reprints.

Twenty-sixth Annual Report of the State Board of Charity of Massachusetts. Boston. January, 1905.

The Doctor's Recreation Series. Facts and Fancies of Interest to the Doctor and his Patient. Charles Wells Moulton, General Editor. Arranged by Porter Davies, M.D. Vol I. Chicago, Akron, O., New York: The Saalfield Publishing Co. 1904.

Blood Changes Produced by Ether Anesthesia in both Man and Lower Animals. By J. M. Anders, M.D., LL.D., and L. Napoleon Boston, A.M., M.D. Reprint.

County and City Care of Consumptives. Some Methods of Housing. New York: Committee on the Prevention of Tuberculosis of the Charity Organization Society. 1905.

Die Kohlensäureansammlung in unserem Körper. Von Dr. Heinrich Lahmann. Stuttgart. 1905.

Lithemia: its Diagnosis and Local Treatment. By F. M. Johnson, M.D. Reprint.

A Protological Clinic. By John L. Jelks, M.D. Reprint.

Overlapping the Aponeuroses in the Closure of Wounds of the Abdominal Wall. By Charles P. Noble, M.D. Reprint.

The Nature of the Indications for Operation for Fibroid Tumors of the Uterus. By Charles P. Noble, M.D. Reprint.

The Downes Electrothermic Clamps. Further Experience in their Use in the Treatment of Cancer of the Uterus. By Charles P. Noble, M.D. Reprint.

Twenty-first Annual Report of the Kensington Hospital for Women. From Oct. 12, 1903, to Oct. 3, 1904.

A Medical Reserve Corps for the United States Army. By Azel Ames, M.D. Reprint.

A Criticism of Recent Surgical Literature on Diseases of the Stomach. By Henry Wald Bettmann, M.D. Reprint.

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Original Articles.

CERTAIN ASPECTS OF THE DIFFERENTIAL DIAGNOSIS BETWEEN EPILEPSY AND HYSTERIA.

BY JAMES J. PUTNAM, M.D., BOSTON,
AND
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The difficulty attending the differential diagnosis between hysteria and epilepsy is occasionally much greater than is ordinarily believed. Mistakes are liable to occur in both directions, and thus time and effort may be thrown away and serious anxiety unnecessarily excited. The subject has a large literature already, and within the past few months it has been taken up afresh by two German physicians, Drs. Bratz and Falkenberg,[1] connected with the epileptic hospital at Wahlgarten near Berlin, where patients are taken who suffer not only from epilepsy but from convulsive disorders of other sorts as well. The records of about 2,500 patients, most of whom were under their personal care, were made the basis of their conclusions.

These conclusions were that a positive diagnosis of epilepsy or hysteria can always be reached if sufficient care and pains are taken, but that it must sometimes remain in abeyance for long periods, even of several years' duration.

There is no single mark, neither the apparent state of consciousness during the attack, the circumstances of its occurrence, or the condition of the pupil or the knee-jerk, which can be regarded as a pathognomonic sign. Each case must be studied in all its features, and between the seizures as well as in them. Mixed forms may be admitted in the sense that one and the same patient may have epilepsy and hysteria, but this is not to be taken as implying the existence of a really intermediate condition, partly epilepsy, partly hysteria. The two diseases, however similar in appearance, are in fact essentially different, and the term hystero-epilepsy is a misnomer and should in the future be disused.

The mode of inquiry adopted by these writers, as by most of the other students of the subject, consisted simply in the careful observation of the signs and symptoms that happened to present themselves, and in the careful weighing of each patient's history, temperament, and antecedents.

There is, however, another method through which the problem can be attacked, and one that we owe to the investigations of late years into the nature of the psychopathic states in general, amongst which hysteria is eminently to be included.

The conviction has forced itself upon the students of hysteria, as every reader is aware, that a process best known as the "dissociation of consciousness" plays a large part in producing the phenomena of this remarkable affection. The hysterical anesthesias and amnesias, for instance, are in great measure now explained, not as implying the blotting out of certain neural functions from all relation to the patient's acts, but as indicating rather a temporary severance of connection between these functions and that particular series of mental processes which lies within the immediate grasp of the attention and makes up the patient's ordinary conscious life, while still continuing to stand in intimate relation to another great series of mental processes (designated as "subconscious" or "extra-conscious" or "subliminal") which help to govern the patient's actions though without the cognizance of his ordinary consciousness.

The attempt to describe this "dissociation" of the mental states makes it seem unfamiliar, but, in fact, it is well known that the acts of every man in health are largely governed by sights and sounds and complex mental operations of which at any given moment he is unconscious, and the main difference between him and the hysteric lies in the degree of organization of these "extra conscious processes" and the degree of their interference with the flow of the normal, social life.

It has, of late years, successfully been shown that in hysteria the organization of these "extra conscious" processes is oftentimes complete to an extent which had not been suspected, and, likewise, that through special methods of investigation the bond between them and the patient's acts, acts which may seem strangely at variance with the other manifestations of his conscious life, can occasionally be laid bare.

It appears to be sometimes necessary for this purpose, that interrogation and observation of the patient during hypnosis should be employed, but that it is often enough if a prolonged series of examinations are conducted by an observer who has trained himself to keep the essential issues prominently within his view. Our experience in these respects is not yet sufficient to deserve citing, but it is claimed that this method has proved to be of notable value, not only in diagnosis, but in treatment, since it has been shown that it is sometimes possible to counteract the antagonisms between the "dissociated" groups of mental states, and to restore to the patient's waking consciousness, once again, control over his acts. The number of cases where it has proved possible to lay bare, in this fashion, a complete sequence of mental experiences, usually hidden from view, but revealing itself in occasional outbreaks of epileptiform character, is as yet not large, but the well-known studies of Freud and of Janet, and their followers, and of Sidis, White and Parker,[2] who have reported in minute detail several interesting cases, indicate that this is a field which may repay more thorough working.

Case I. The first case which we desire to report is that of a young lady of seventeen, with a somewhat neuropathic history, in that as a child she had chorea, and that in her mental characteristics she was unlike her brothers and sisters, very bright and even talented in some directions, but slow to learn from books and

[1] Arch. für Psych., etc., 1904, B-38 H 2.

[2] Psychopathological Researches in Mental Dissociation: Sidis, 1902.

given, secretly, to childish amusements, such as playing with dolls, at an age when she might have been expected to have outgrown them. In temperament, too, she was hard to deal with, irritable with the other children, and, during the chorea, appreciably altered in her mental state. In some respects other members of the family had exhibited neuropathic tendencies, although they were all persons of fine and strong character and fair health.

To present, first, the aspect of the case which might create, and in fact actually did create, a strong suspicion of epilepsy, it may be said that during a certain period of her life, covering about two years, this patient was subject to sudden seizures in which she would fall to the ground, and for a moment certainly lose consciousness. These attacks, did not, it is true, occur at night, but, on the other hand, they were not individually brought on by any emotional excitement. Thus, once, while sitting at table at the house of a relative, she felt that she was going to be ill, rose from her seat and went out of the room, and then fell heavily on the stairs. On another occasion, the same thing happened during a music lesson, and again when she was studying at her desk, and while no one else was in the room. First and last, a great many of these attacks occurred, but there were none of a severer or convulsive sort, and it was observed that she did not hurt herself in these falls, and that when near a bed she would manage to fall partly on that. The face became usually slightly flushed. There was no memory of any of the attacks, nor any aura beyond that of a vague sensation in the beginning which warned her that one was coming on. It is a point of a good deal of importance that although most of these attacks occurred, as will be explained, during a period of emotional tension, the first seizure which she could recall had taken place two years before this period, and while she was riding by herself through the woods. She remembers that she felt strange and that she was impelled to dismount from her horse and sit down on the bank by the roadside. She then had, she thinks, a moment of unconsciousness, after which she mounted her horse again and rode home. So far as she knows, her thoughts were occupied at that time, solely with the enjoyment of nature, but one cannot assert positively that nothing else was there.

It is hard to see how any one, hearing the account of seizures such as these, would feel justified in taking the responsibility of rejecting the diagnosis of epilepsy; yet the circumstances under which these curious attacks occurred, with the exception of the first one to which I have just alluded, and the fact of their eventual disappearance, has led me and others to adopt with confidence the opposite opinion. These circumstances were as follows:

This young lady, whose temperament and emotional life were, as has been said, somewhat neuropathic, had formed, at the period when these attacks began to become frequent, an attachment which she could not fail to know was likely to meet the disapproval of her friends and might bring unhappiness to herself. She was, or conceived herself, furthermore, under the necessity of keeping her affairs a secret, and this led to emotional excitement of a decidedly unfavorable sort. Finally, her lover departed for the Cuban war, and after returning thence, and also after the facts of the romance had become known, he went to seek his fortunes in a distant place. Soon after this the young lady entered a boarding school in another city, and began at once to pass the early part of every night in a sort of trance-state, in which certain of her recent experiences were lived over in considerable detail. She was ordinarily a sound sleeper, even during this period, and even now she would fall asleep quickly, but almost immediately afterwards, would roll over and begin to rub her head in a certain way, passing her hands constantly through her hair. Then she would repeat aloud the roster of her lover's company, and would talk, in fragmentary but almost identical sentences, about many of the events which had been present to her mind. After remaining in this state for about an hour she would fall into a quiet and natural sleep, to wake in the morning entirely unconscious of the events which had occurred. At a little later time, these states gave place to other somnambulistic phenomena, all relating to the central emotional experience of her life. It is unnecessary to go further into the details of this history. I will only say that her personal prospects became eventually changed, to the complete satisfaction of herself as well as of all her friends, and that therewith both sorts of seizures disappeared. In the space of several years they have not recurred, except that, on one occasion, while she was suffering from the severe pain of a chronic appendicitis, she fell, one night, into a hysterical condition with delirium and hallucinations of a terrifying sort.

We have no especial explanation to offer for the single *petit-mal*-like attack which occurred two years earlier than the others, nor are we prepared to assert that in these brief seizures which so strongly suggested true epilepsy the apparent loss of consciousness was really attended by a sub-conscious mental state of another sort. We assert only that, clinically speaking, the apparently complete disappearance of these momentary attacks coincidentally with the disappearance of the somnambulistic states, strongly militates against the propriety of diagnosticating them as epileptic.

Of course, it is well known that nervous and hysterical persons may suddenly faint, but these attacks were not such as could be classified in that way, unless, indeed, one is ready to enter upon the question of the possible existence of a real relationship between syncope and *petit-mal*. The able monograph upon hysteria by the late Gilles de la Tourette, contains, however, a distinct recognition of the occasional occurrence of *petit-mal* in that disease, and the very recent and critical work upon hysteria by Binswanger contains practically the same admission. The latter writer, in an elaborate and careful review of all the differential marks between epilepsy and hysteria, usually so divergent in their tendencies, comes, indeed, to the conclusion that circumstances now and then present themselves under which a positive diagnosis is impossible, and that there is really no sign, whether biting of the tongue, occurrence of the attack during the night, or absence of pupillary and patellar reflex, which can justify an absolute distinction.

Possibly, even the analysis of the mental condition, as made in the cases reported in the book of Sidis, may not be conclusive. Patients with states of altered consciousness, hitherto classified as strictly epileptic, have not yet been examined by this method with sufficient care to make it possible for us to deny that even with some of them memories of the paroxysmal period might be developed through the medium of hypnosis. The possibility of such an occurrence becomes the more reasonable when it is remembered that various authors of good repute who have prac-

ticed hypnotism claim to have succeeded in ameliorating and even curing epilepsy by that means. One of the most successful of these is Wetterstrand,[3] and Bramwell[4] in discussing the reported cases thinks it possible that the reason for Wetterstrand's pre-eminent success, if such it be proved to be, might lie in the fact that he had employed the method of very prolonged hypnotic sleep, really of many hours in length, for this end.

Croeq [5] denies the possibility of bringing about successful results, in true epilepsy, by this means, and explains the apparent successes of his colleagues through the assumption that the cases with which they dealt were probably not of epilepsy, but of hysteria. He himself reports an important observation which he believes to be of this sort, where a young woman, who had for many years been treated as an epileptic, far and near, and whose attacks had also been ameliorated by large doses of bromide, was completely cured by hypnotic suggestion. In this case other symptoms of hysteria, such as mutism and astasia-abasia, afterwards occurred, which seemed to bear out his diagnosis.

Case II. The next case, illustrative of *petit-mal* in hysteria, is that of a woman twenty-seven years of age, who was subject to sudden attacks of loss of consciousness coming on whenever she was startled by sudden fright or a loud noise. Under such conditions she would have an indescribable sensation, in the precordial region, and would then fall at once to the ground, sometimes injuring herself more or less severely. She thinks that consciousness was lost for a moment at these times, but immediately recovered, although a brief period of confusion followed. There were never convulsive movements nor was there any change of color or involuntary micturition. These spells had occurred from time to time, she said, depending in frequency on provocation, since menstruation began, but since the age of twenty-five they had recurred much more frequently, being precipitated by trivial causes. If one standing beside her put her hand on the patient's shoulder she would drop. And thus she often had eight or ten attacks a day, and they would frequently come when she was alone, either in the house or on the street. On one occasion, as she was lifting the tea kettle from the stove, it slipped a little in her hand. She grasped it more firmly, but the start caused her to fall in an attack, scalding herself badly with the boiling water. Inquiry into her life indicated that she had shown other hysterical manifestations, such as outbreaks of irritability and loss of control, and physical examination disclosed a left hemianesthesia of which she had been ignorant. After a short period of encouragement and tonic treatment the attacks disappeared and remained in abeyance for a long time, but, three years later, she returned in the same condition as before, and with a constant dread of falling, so that she went about but little. At this time she had a terror of stairs, and would approach a stairway in a crouching position, much as one would near the edge of a precipice. Then she would grasp the banister with both hands, and go down sideways, one step at a time.

Case III is that of a woman, thirty-four years old, who had never had any convulsions till she was pregnant for the fifth time. At that period, when she was six months advanced, she began to have attacks every night which continued until the baby was born, when they at once ceased. They never came in the day, but every night she had from two to a dozen, so that in anticipation of them she kept a light burning in the room. Her husband would be awakened by her moaning, and on looking at her he would see her lying on her back, her face blue, her jaws set, the eyes at times open and at times closed, and her hands and arms "trembling" violently. He would raise her head and in a minute or less she would awaken with a deep breath. The attacks never came when she was awake, but only during her sleep. She has bitten her tongue and cheeks several times. On two occasions she sprang out of bed, when her husband raised her head, during the attack, and shouted and whistled, while jumping up and down. These attacks returned as before during two later pregnancies, both times coming on at the sixth month. They also came once when her catamenia stopped for three months. They recently appeared again and recurred every night for a time, without pregnancy or other apparent cause, but ceased at once after a thorough scolding, and tonic treatment, so that now she has had but one attack in the past three weeks. It seems most probable that these are hysterical attacks, but they present many of the characteristics of epilepsy, as nocturnal occurrence, cyanosis, biting of the tongue, clonic spasm and short duration.

Case IV. There is at this moment, at the Long Island Hospital, a young woman who has, from time to time, violent attacks characterized by convulsions, foaming at the mouth, biting of the tongue, and falls resulting in painful injuries, which those who have observed her declare themselves unable to distinguish from true epileptic seizures, yet in other respects she is profoundly and typically hysterical, and anesthetic to an extreme degree.

This sort of a case is indeed well-recognized, and though it is by no means clear that the current psychophysical explanations of hysteria can satisfactorily account for such attacks, yet it is believed by good observers that they may be really hysterical in nature.

One of the writers recalls seeing, at the Salpetriere, an hysterical patient whom Charcot was showing to the class, pass, with apparent suddenness, into an attack which seemed thoroughly characteristic of epilepsy. The head turned slowly to one side, the face became purple, the muscles rigid, foamy saliva appeared on the lips, and to all appearances consciousness was wholly lost. It would be, of course, an easy assumption to conclude that epilepsy and hysteria existed side by side in many cases of this sort, but before reaching this decision, it would be fairer to consider whether there may not be a true hysterical copy of well-marked epileptic seizures. It would not be necessary for this hypothesis to assume that the copy must be a conscious one. We have had recently at the Massachusetts General Hospital a patient with a well-marked tetanus, who began, long after the cessation of the real disease, to be subject to spasms which, in every respect, seemed to resemble the original, and which persisted for a long time and only yielded, finally, to prolonged care and mental training. It is probable that the convulsions of epilepsy represent a nervous outbreak for which the normal nervous system is, in a certain sense, prepared by its very constitution and structure, just as it is probably prepared for the so-called hysteri-

[3] Der Hypnotismus, etc.
[4] Hypnotism. Its History, Practice and Theory.
[5] L'Hypnotisme scientifique.

cal hemianesthesia, and then we are only obliged to admit that what is really a natural plane of cleavage, so to speak, may be accentuated. It is, indeed, quite possible that the paroxysms of epilepsy and hysteria, or, to say the least, certain forms of epileptic and hysterical manifestations, may stand more closely in relationship than has hitherto been assumed. Thus, in some cares, the indications of dissociations of consciousness manifested in epileptic attacks bear close resemblance to those seen in hysteria. This is illustrated by the two following cases:

CASE V. A bright, intelligent girl of thirteen years has had attacks of unconsciousness during the past two years, her mother says, in which she sits or stands still, changes color, has convulsive movements of face and arms, bites her tongue, and passes urine involuntarily. These at first came at intervals of weeks, but now only a few days intervene.

While sitting in the hospital one day, she was observed in one of these spells. The eyes assumed a vacant look, but not a pronounced stare. The pupils were not dilated. The face was cyanotic and drawn as if she was suffering great pain, while both hands were pressed against the lower abdomen. Saliva drooled from the mouth. The knee-jerks were absent. The expression of pain lasted only half a minute, and then she sat with a stupid look, the cyanosis still persisting. When some one attempted to wipe the saliva from her chin and neck, she took the towel and completed the action. On being told to stand up, she obeyed, still drooling and looking stupid. When asked her name, she seemed to be trying to recall it, but couldn't say it, then she pointed to her history card, which was lying on the desk among other papers. Asked where she lived, she pointed again to the card. When given a pencil and block of paper she wrote her name and address and the name of the hospital. While writing, she came to herself, but had no memory of what had transpired. The attack lasted two to three minutes. Incidentally, it may be mentioned, in connection with her apparent abdominal pain during the attack, that examination showed the entire course of the colon to be filled with masses of feces.

The question arises, What is there in this attack to distinguish it from hysteria? The condition called by the mother "unconsciousness" is shown to be but an altered consciousness, by the manner in which she responded to the words and acts of those about her. It was, in fact, a short period during which her subliminal consciousness held sway precisely as it does in hysteria.

The condition seen in this seizure was not characterized by a true loss of consciousness, but was due more strictly speaking to an alteration of consciousness, of such a sort as we sometimes find in hysterical states. The case was, in fact, selected on account of the similarity of the attacks described to those observed in the case of another patient, unquestionably an hysteric.

CASE VI. A girl about twenty years of age had had several spells, resulting from emotional causes, of which the following is a characteristic specimen: One evening, when a young man was who escorting her home became involved in a fight with a companion, in her presence, she sank apparently unconscious to the ground. When seen, a few minutes later, she was lying in a dazed condition, not seeming to understand what was going on about her. There was no change of color, the pupils reacted and the knee-jerks were brisk. On being asked her name she seemed unable to speak, but when given a pencil and paper she could answer in writing any simple questions, after considerable deliberation. This condition lasted about a half an hour and on her regaining consciousness she developed a marked tremor with anesthesia of the right arm, which persisted several days. While in this dazed condition and unable to speak, she wrote, "I have been this way before."

Here, then, are two patients presenting attacks having many similar characteristics. In each there is alteration of consciousness of much the same sort, and in each there is inability to speak, with preservation, to a certain extent, of the power of expression by writing.

These two particular cases can be classified almost without hesitation. The attack in the first case, occurring in a girl who also suffers from typical epileptic paroxysms, and being associated with loss of the patellar reflexes, would be diagnosticated as epilepsy, while that in the second case, from its mode of onset and association with the stigmata of hysteria, would at once be classed as hysterical.

It is not always, however, that these additional distinguishing marks are present, and the diagnosis may hang in the balance for a long time, until characteristic signs of one or another sort appear.

Mistakes might easily be made, for example, in cases like the following, taken from Dr. Boris Sidis's volume on Mental Dissociation, although actually reported by George M. Parker. This case was that of a man of thirty-three, who, as a sequel to a somewhat prolonged emotional excitement, and when temporarily somewhat under the effects of alcohol, fell suddenly to the floor while talking and became unconscious, and was afterwards subject to frequent attacks which may be described in brief as follows:

The seizures are usually ushered in with epigastric pain or distress which spreads upwards and by a foul taste in the mouth and a sense as of a fetid odor. He usually falls and then may lie quietly with fingers clenched or may move the hands in an aimless way. Sometimes there are general motor disturbances of the arms and legs, or automatic acts, such as removing shoes, etc., and frothing at the mouth. Occasionally he does not fall but sits still, gazing fixedly before him. He cannot remember what transpires during the attack and is always stupid afterwards. His memory and judgment have become progressively enfeebled and his general condition is poor.

We do not, of course, deny that if all the circumstances of this case, only some of which are here given, were taken into account, the diagnosis could be made with a reasonable degree of confidence, but to guess at a diagnosis is one thing and to explain the genesis of symptoms and to lay the foundation for a systematic and successful treatment is another. In this case, a searching analysis, made possible through the induction of the hypnotic trance, during which the circumstances of each seizure came gradually to the patient's memory, seemed to make it clear that the case was one of dissociation of consciousness and of "submergence" of memories, wear-

ing the aspect of amnesia. In fact, an explanation was discovered for each of the acts done during the stage of apparent unconsciousness, showing them to be not purposeless but governed by a systematized train of subconscious memories and thoughts. The successful treatment of the case, which consisted in training the patient to a gradual conscious knowledge of these lapsed portions of his mental life, confirmed the diagnosis beyond a reasonable doubt. The suddenness of the transition from the state of ordinary waking consciousness to that in which the dissociated portion of the mental life assumed control need not cause surprise, since it is well known that a susceptible subject may even be hypnotized and dehypnotized with almost or quite equal suddenness.

We have introduced this case as illustrative of the newest phase of the investigation of psychopathic states attended by dissociation of consciousness, because it is evident that by the aid of subtle inquiries of this sort a new any valuable kind of information is likely to be gained for the elucidation of just such conditions as those with which this communication is concerned. Of course, it cannot be denied that with an increase in our knowledge comes a fuller sense of the remoteness of an adequate solution. No one, so far as we are aware, has as yet studied with sufficient thoroughness the subconscious memories of epileptics, and for all we now can say, closer resemblances may be found between these and the subconscious states of the hysterics than we now imagine. To assume this, however, would be to attempt to bridge at once a difficulty which time may show to be non-existent.

Sidis refers to this question of the dissociation of consciousness in epilepsy, in his recent publication upon the Nature of Hallucinations[6]. As he justly indicates, the mental state of epileptics in the post-paroxysmal stage is probably analogous, as a rule, to ordinary dream states. Under both of these conditions, primary sense-perception is imperfect, while secondary sense-images are aroused in chaotic confusion,— like sparks on a half-charred sheet of burning paper, to use a simile of Professor James's, — and conceptual processes are unrestrained by logic or experience. Such a statement, however, does not fully account for cases like the following:

Case VII. This patient is a man of twenty-five years, of rather low grade of intelligence. He has had freuent and typically epileptic convulsions for twelve years, but during the past five years they have largely given place to what he terms "vertigo attacks," and which he describes as a passing sense of dizziness. An attack observed was as follows: While sitting in the clinic he was heard to be making a peculiar sound by smacking his lips as if he were tasting something. On going to him he was seen to be holding tightly to the arms of his chair, the eyes open and pupils dilated. The knee jerks were present. He answered questions unnaturally quickly in a loud voice. When given a pencil and told to write he put it in his pocket and repeated "Thank you" several times. Given a block of paper he picked at it nervously as if he did not know what it was for. When a pen was put into his hand and he was told to write his name he wrote a note to himself and signed it with a name not his own. When this note was taken away he wrote another, also addressed to himself, and signed it as before, the note being on the same subject but worded differently.* As he finished this he came to himself and then had no memory of what he had done. On being questioned he said he had had a slight dizzy spell, lasting a second, but had not lost consciousness. The duration of the attack was five to six minutes.

[6] Jour. of Psychol., Jan., 1904.

Not only may the atypical attacks of hysteria and epilepsy resemble one another, but patients suffering from typical forms of these diseases may alike be subject to a more or less familiar sort of psychical derangement which Janet has designated as "psycholepsy."[7]

In addition to the forms thus far discussed, we wish to call attention to a class of cases described many years ago, by Professor Fürstner[8] of Strassburg, who called attention to certain sorts of attacks, occurring in children under seven years of age.

The question was whether these attacks were to be classed as epileptic or hysterical, and while Fürstner favored the latter view our own reasoning and observation inclined us to the former.

The clinical picture as described by Fürstner was, in brief outline, of the following sort: The young patients were of either sex, but oftener males. Neuropathic inheritance was not marked. The seizures recurred with great frequency, for a longer or shorter period, even to the number of 20 or 30 times or more a day, sometimes coming also, though less often, in the night. The form of the seizure was variable, but outspoken convulsions of one type or another were included. Yet, in spite of the severity of the motor outbreak, there was no biting of the lips or tongue, and no disturbance of the temperature, the respiration, or the pulse. Sometimes, although not always, the patients would emerge swiftly from an attack, or a series of them, with consciousness undamaged and unchanged. There was no evidence of gross structural lesions of the brain. The tendency to these attacks, in spite of being so strongly marked, would sometimes cease abruptly for long periods, and — most important sign of all — the bromide treatment, even by large doses, failed to bring relief, while education and training and strong, even painful faradic applications, — all measures, in short, considered by Fürstner as of benefit in hysteria, seemed to be more effectual.

We have seen children, not infrequently, who seemed to belong in Fürstner's class, but so far as we have followed them, they have proved

* Dear Mr. F. — Will you please help this boy and give him some work as he is a good boy and trying to help support his mother.
Your affectionate son
DANA.

[7] The idea which this term is intended to cover is clearly expressed in the following translation from an authorised digest of Professor Janet's paper read before the Soc. of Psych. et Neurol., 1904: "We may say that the higher functions of the brain which allow of adaptation to reality, as well as the feeling of reality itself, have disappeared; and that the lower functions alone are active. It is a lowering, a fall of the mind." We have repeatedly seen examples of this sort of mental change. See Boston Medical and Surgical Journal, 1905.

[8] Arch. für Psych., etc., 1868, p. 464.

almost without exception to be epileptics. Some of the cases that have interested us especially are the following:

CASE VIII is that of a young girl of about seven years who had great numbers of attacks daily, through long periods. In some of these attacks, more than one of which I witnessed, she would quickly assume an attitude of a definite sort, suggesting that of a person crouching over and looking up, as if caught in some act and petrified by surprise or sudden fear. The face was slightly flushed and its expression a little altered, but no absolute unconsciousness could be made out, and more or less communication could be held with her, throughout. The duration of these seizures was perhaps half a minute, and after they were over the child would at once resume its occupations as if nothing had occurred. The child's physician believed the attacks hysterical, for reasons similar to those advanced by Fürstner, but a history was given of one or two severer seizures which seemed to me to mark them as truly epileptic — assuming for the moment that an absolute classification of this sort is possible. The test of increasing doses of bromide was faithfully tried, and eventually an opium-bromide test, but neither of these measures caused the attacks to cease, although the bromide dose was pushed to what, even with an adult, would have been regarded as extreme.

The correctness of the diagnosis was substantiated by the testimony of the patient herself, and that of her physician, some years later, to the effect that the attacks had continued to recur, although less often, and that no marks of typical hysteria had developed.

It is not for the testimony of one, apparently negative instance that we report this case, but with the purpose of discussing the significance of certain indications that Fürstner has adduced as justifying the diagnosis of hysteria. These are, the sudden cessation of seizures previously numerous, the failure of the bromide treatment, and the relative efficacy of more general educational measures of relief, or measures designed especially to make a strong impression on the patient's mind.

In our experience, it is distinctly characteristic of the epilepsy of childhood, as is shown by cases where the subsequent history has confirmed the diagnosis, that for a longer or shorter period the attacks, although previously occurring in masses, may remain entirely in abeyance.

We cannot cite statistics for this statement, but we have had the experience often enough to be impressed with its validity.

So, too, with regard to the effects of the bromide treatment: it is in the epilepsy of young children or, to say the least, in this form where numbers of massed attacks occur, that this method of control is eminently disappointing, no matter how far the doses may be pushed, though as regards the matter of dosage, it is already well established that children in general can often bear quantities of bromides that are relatively very large.

The case next to be reported bears out both of these observations.

CASE IX. The patient here concerned was a little boy of a distinctly neuropathic temperament and belonging to a neuropathic family, a circumstance which need not be dwelt upon in detail, as it might predispose to either epilepsy or hysteria. When at the age of five and a half, he began to exhibit curious symptoms, which occurred only just as he was falling asleep, or had fallen asleep, at night. At these times slight jerking or shivering movements would run through his limbs for a few seconds, and then settle down again to sleep. During the day he seemed well, in the early stages, except for irritability and excitability, but the next night the same thing would occur again. At first, a moderate bromide treatment, with careful attention to the avoidance of emotional excitements, seemed to do him good, and when, a little later on, he was taken into the country and left under the care of an intelligent nurse, without the stimulating presence of other children, the benefit was reinforced, and for a considerable period there was a complete cessation of the attacks. After some weeks, however, and absolutely without apparent cause, the seizures began once more to show themselves but under a slightly different form. He would now run to his nurse as if in a sort of fright, and would bring out a silly laugh which those about him learned to know and dread. These seizures would now occur in the daytime, as well as by night, so that he might have one or two dozen slight attacks, or more, in the twenty-four hours. It is now about five years since the attacks began, and during that time he has been constantly under close intelligent observation, with the result that everyone who has had a chance for more extended watching has become convinced that the attacks are epileptic. During that period he has visited two other expert physicians in other parts of the country, both of whom have given it as their opinion that the seizures indicated a neuro-psychosis of another sort, a kind of convulsive tic, excited perhaps by intestinal indigestion. Nevertheless, the treatments that they suggested for relief had no effect and, instead, the attacks have grown steadily both longer and more severe, and the periods of cessation which for a long time were prolonged and marked, have become less striking.[*]

CASE X. An intelligent, normal-appearing child, ten years of age, gave a history of having had momentary attacks of abdominal pain for three years. These came at first about once a month, but during the past two years they have become more frequent in their occurrence so that there are periods of weeks when she has ten or twelve seizures a day, after which she may pass several weeks without them. During the spells she holds on to the abdomen and screams loudly for half a minute to a minute and then appears to be all right. If she is in the house she always runs screaming to her bedroom, but generally recovers before reaching it. If the attacks occur when she is out of doors, she runs toward the house, but if they come on during sleep she lies still in bed making loud outcries. She does not know the following day that she has had an attack, though the day attacks are always preceded by a short and painful abdominal aura lasting only a second, of the onset of which she retains a vague memory.

Before coming to the hospital she had been treated for six months by a stomach specialist who kept her bowels freely open during the period referred to, with no diminution in the frequency of the attacks.

There was no history to be obtained of epilepsy in the family, but the mother described two attacks which the patient had had during the past year, characterized by unconsciousness and clonic spasm lasting two or three minutes. In one of these the tongue was bitten, although in neither was there involuntary loss of urine.

[*] Since this account was written the patient has died of bronchopneumonia. The autopsy, by Dr. Mallory, showed diffuse changes in the brain, including the cerebellum, which the histological examination, though not yet complete, indicates to be probably the secondary results of a chronic epilepsy.

The patient had been treated at the Children's Hospital for several months, and under moderate doses of bromides she had suffered from only an occasional attack.

A paroxysm observed by one of the writers was as follows: While sitting quietly in the consulting room the patient suddenly said an attack was coming, and before she could be reached she was grasping at her abdomen and crying as if in pain. There was no change in color, but the face wore an expression of suffering. The pupils were neither dilated nor contracted and reacted to light; the knee jerks were as active as in her normal condition and she tried to push the examiner's hands away while the test was being made. After about half a minute she appeared to be free from pain but held out her hand saying repeatedly, "Give me my number." And when asked what she meant she would not explain. The whole attack lasted from one to two minutes, and on recovering she had no memory of what had been going on around her during this period. With a salt-free diet and moderate doses of bromides she has been free from these attacks for some time.

Case XI. This patient is rather a stupid appearing girl of thirteen years, presenting numerous physical stigmata of degeneration and a distinctly retarded mental development. There is no history of epilepsy or alcoholism in the family.

She was delicate as an infant and at the age of two and a half years was seized with a series of convulsions for which she was kept under ether much of the time for two days. Again, at the ages of four and at six, she had single convulsions which were attributed to indiscretions in diet.

Since the age of five, this patient has been subject to seizures of abdominal pain during which her face flushes and she presses her hands into the abdomen and screams loudly for about a minute after which she seems all right. The attacks often terminate with the passing of gas from the rectum. She never falls during these spells, and her mother thinks she does not lose consciousness.

The attacks have persisted now for eight years, coming in the day or during sleep. She frequently has six or eight seizures a day, but often passes a week wholly free from them.

In addition to these abdominal paroxysms there have been for two years spells of quite a different nature, coming always at night during sleep.

The mother, who sleeps in an adjacent bed, says she is awakened by a moaning, and on going to the patient finds the right side of the face twitching and the eyes open and staring. Sometimes she will kneel or sit up in bed and assume fixed attitudes and she cannot be aroused from this condition for five or ten minutes.

The patient, in describing her own attacks, says she wakes up in the night and that many queer thoughts go through her mind; then she feels as if her mouth was drawing up and she begins to cry out. She can hear her mother run to her, and her father rush into the room and seize her and call her name, and then she knows no more till she has recovered. The patient takes delight in talking about herself and her attacks and listens with absorbing interest when her mother tells of them, and her general behavior had led the family physicians to make a diagnosis of hysteria.

In order to study the symptoms more carefully she was taken into the hospital where she stayed three or four weeks, having one to three attacks of varied sorts every night. The following description by a night nurse serves to illustrate their general character:

While the nurse was sitting by the bedside the patient opened her eyes as if awakening from sleep but their expression was fixed and staring. The pupils were dilated, and the lips were parted, showing the teeth as if in an ecstatic grin. She lay for about a minute thus and then seized the nurse's hands and rose to her knees in bed looking about the room as if her gaze were following some object moving in the air. The grin then disappeared leaving a vacant expression and she fell back, limp, and lapsed into a stuporous condition, which passed into natural sleep. In the morning she had no knowledge of having had an attack.

Various methods were employed to abort these nocturnal spells, such as apomorphine and inhalations of amyl nitrite, but with no satisfactory results, and the patient was discharged with the diagnosis still in doubt.

In following the treatment at home, however, she was given forty to sixty grains of bromide a day, and for the first time in years both the night attacks and the abdominal crises stopped absolutely for six months. At the end of that time when treatment was stopped, she had two convulsions in one night, characterized by tonic followed by clonic spasm, lasting about five minutes, during which there was loss of consciousness, biting the tongue and involuntary micturition.

The histories and reasoning here given show clearly enough how difficult the differential diagnosis between hysteria and epilepsy may occasionally be, and how much injustice the physician is liable to do his patients unless he keeps himself ready to revise his judgments. We believe that in the routine of dispensary and out-patient work, where time is usually precious and where the testimony of the patient's friends is apt to be unreliable, the chance for error is especially great, and that, to neutalize it, every neurological staff should embrace one or more members, skilled in psychopathical researches, by whom all doubtful cases should be from time to time reviewed.

In speaking of the similarity, in certain respects, of the clinical pictures presented by hysterical and epileptic patients we have avoided the discussion of the issue whether any closer bond exists between them, but the following statements with regard to that point seem to us conservative and rational.

Although it is in general correct to say that the diagnosis of so-called idiopathic epilepsy is considerably more grave than that of hysteria, and that these two affections represent different tendencies, yet this statement should not be taken as absolute without qualification. It is probable that the term epileptic, as implying a tendency to outbreaks of certain sorts, covers a variety of pathological tendencies, and the mere form of the attack does not always enable us to distinguish between them. Thus, epileptic fits as seen in cases of brain tumor may be indistinguishable in themselves from those met with in cases exhibiting the familiar degenerative tendency associated with the name of epilepsy in general. Again, degeneracy itself is by no means always present in epileptic conditions, even those classified as idiopathic. We know too little of the physiology of the epileptic seizure, in its varied forms, to be able even to say there is a sharp distinction to be drawn between such an attack as occurring in hysteria and another which might

be found in epilepsy proper. However much we may believe these two forms to be different, it is impossible at present to give the ground for our belief.

SUBACUTE PERFORATION OF THE STOMACH WITH REPORT OF THREE CASES.

BY F. B. LUND, M.D., BOSTON.

PERFORATION of the stomach into the general abdominal cavity is a catastrophe so sudden, so rapid and definite in its progress, that either at operation or autopsy it is generally recognized. The statistics regarding it have been made up perhaps with some approach to accuracy, and the greater frequency of perforations on the anterior wall of the stomach as compared with the posterior has been definitely established. According to Brinton, 20% of perforations occur on the anterior stomach wall, 21% on the lesser curvature, and only 9% on the posterior wall. Pariser and Lindner state that of 200 cases of gastric ulcer, 190 will be on the posterior wall, and of these 4 will perforate; 10 will be on the anterior wall, and of these 8½ will perforate. Although perforation occurs more frequently in women than in men, allowing for the greater frequency of ulcer in women, we find that perforation is relatively more frequent in men.

As is well known there is great variation in the size of the perforation. In proportion to the size of the perforation will be the severity of the onset of the symptoms.

The symptoms of acute perforation, the sudden sharp stabbing pain, "like a blow in the solar plexus," as a patient once described it, soon followed by collapse and the development of a general peritonitis, are too well known to need enumeration here.

It is to the so-called subacute perforations, perforations in which the very small opening may become plugged by a bit of omentum, or by fibrin, that the writer invites your attention. Here the perforation becomes almost at once walled off by adhesions to the nearest intraperitoneal organ, or the abdominal wall. If by proper treatment, rest in bed on diet, etc., the stomach is placed at rest, for a few weeks, the fibrinous adhesions become organized into fibrous tissue, the ulcers may heal and the patient be left with no symptoms of his former disease except the adhesions, or perhaps the deformity produced in the stomach by the cicatrix. On the other hand, the few filmy adhesions which at first check the peritoneal invasion, instead of consolidating and becoming organized, may be digested away, the peritonitis may spread and at the end of two or three days develop rapidly, and perhaps end the patient's life in a few hours. Or by a walling off of a more extensive area, a chronic abscess may be formed, which may end fatally or in recovery according to accident or treatment. The first class of cases, that in which the adhesion is at least temporarily successful in limiting the ulcer is the one to which the cases to be described belong.

Symptomatology. — The symptoms are almost exactly the same as those of acute perforation of the stomach, with the exception that they are perhaps a little less intense and are not followed by collapse, or by general peritonitis. We have to do with a sudden attack of localized peritonitis, a sudden attack of sharp, stabbing pain, with or without vomiting, and followed by localized tenderness or rigidity, in a patient who may or may not have had symptoms of gastric ulcer. The pain subsides under treatment, and the tenderness and rigidity pass off after several days, the patient having been through an attack of epigastric peritonitis. Seeing a patient during the subsidence of such an attack (for the good fortune of the surgeon is seldom so great that he is called at the height of the attack) the practical questions at once present themselves, as to how he is to make the diagnosis and what treatment he is to follow.

First as to diagnosis. What aid can we get from the exact location of the pain and tenderness? Not much, for it depends entirely on the situation of the ulcer. If the ulcer is situated at the pyloric end of the stomach, on the anterior surface, and the peritonitis glues the pylorus to the liver, the pain and tenderness are so close to the gall bladder region that it is impossible to absolutely exclude an acute cholecystitis as a cause. The history of previous attacks of gallstone colic may put us on the right track in gallstone disease, and the character of the pain and its relation to food may point to ulcer and perhaps should have done so in Case I, but as W. J. Mayo has well said in regard to these cases, "We all know how unreliable these histories are." The only method to settle the question is by an exploratory laparotomy. *Vide* Case I.

Again, in Case III, in which the ulcer was situated in the greater curvature to the left of the median line, and a perforation became walled off by adhesions to the anterior abdominal wall, in an old man whose only symptoms had been constipation and loss of weight, we could not exclude a perforation of a malignant ulcer of the colon. Exploration alone could settle the question.

In Case II we had a typical history of gastric ulcer, with exacerbations and hemorrhages extending over a period of months. Here the diagnosis was fairly certain. It seems to me that here as in the other cases immediate exploration was the only conservative procedure. It is true that in all these cases operation was performed at a time when the symptoms were subsiding, and in Cases I and III in the presence of an uncertain diagnosis. It is also true that operation benefited not only by establishing the diagnosis, but by affording opportunity for the application of the only rational method of treatment, namely, gastro-enterostomy. It is also true that had the conditions revealed at operation been either of the others suspected, namely, cholecystitis in Case I or perforation of a malignant ulcer of the large intestine, Case III, operation would also have afforded the only rational method of treatment.

A case of ulcer of the stomach, gallstones or ulcer of the colon that has gone on sufficiently to threaten perforation, is certainly in a condition to be benefited by no other treatment than the operative. The advantages of the procedure adopted in Cases I and II, namely, the performance of a gastro-enterostomy without separating the adhesions and opening up the ulcer, are the writer's chief reason for reporting these cases. The treatment of an open perforation is manifestly to invert the edges of the ulcer and close it by suture. The ulcer has already perforated into the general cavity and the peritoneum is soiled. In these subacute perforations, however, nature has already closed the perforation, and if we can get along without tearing the adhesions, opening up the ulcer and soiling healthy peritoneum, we give our patient a distinctly better chance. In case the ulcer is on the anterior surface or lesser curvature and is to the right of the median line, and the adhesions are to the inferior surface of the liver, there is nothing to prevent our turning up the posterior surface of the stomach and performing a posterior gastro-enterostomy without breaking up the adhesions, opening the ulcer, or soiling the cavity with stomach contents. We provide internal instead of external drainage for the ulcer, and we operate in a region where the peritoneum and gastric wall are healthy instead of inflamed, and where our opportunity of getting perfect healing is the best. And last, but not least, we give the best treatment to the underlying condition of chronic ulcer to which the perforation has been due.

In Case III it was impossible to operate without opening up the perforation, as the adhesions which closed it concerned the abdominal wall directly under the exploratory incision, and the ulcer had to be detached in order to get into the general peritoneal cavity. The performance of a gastro-enterostomy which was done in this case was, however, in the writer's belief, the correct procedure, as it was a curative measure applied to the ulcer to which the perforation was due.

Case I. P. J. G., twenty years old. Piano varnisher. Was admitted to the City Hospital the 3d of October, 1903, service of Dr. H. L. Burrell, who kindly referred the case to me for treatment.

For about a year he had suffered from occasional pain in the epigastrium, and for six months had always had pain after taking food. One week ago, he received a blow in the right hypochondrium while boxing, and after that had slight pain in that region until the day before entrance, when he was taken suddenly ill with violent, griping pain, starting in the epigastrium and spreading all over the abdomen. His bowels had not moved since the pain started. He vomited after taking warm drinks, and had a chill lasting one hour. He walked to the Out-Patient Department where he was seen by Dr. Franklin W. White on the day of entrance, where his temperature was found to be 100.3, pulse 60. His skin was slightly yellow. The abdomen showed no distention. There was slight general spasm and marked spasm and tenderness over the gall bladder region. No mass could be felt. The leucocyte count was 16,000. With rest in bed the tenderness and spasm over the gall bladder region disappeared, until on October 7 there were very few symptoms left.

The probable diagnosis of gallstones was made and on the 7th of October the writer operated, making an incision 2 inches long through the upper part of the right rectus muscle over the gall bladder. The gall bladder was found to be normal. On opening the peritoneal cavity there was an excess of clear, rather dark, peritoneal fluid. The excision was extended downward and the appendix was found to be thickened, chronically inflamed, adherent along the outer side of the colon, and about six inches long. With considerable difficulty the appendix was dissected out, ligated and removed. Although the appendix extended upward toward the hypochondrium, we still felt that the presence of free fluid in the peritoneal cavity had not been sufficiently accounted for. A further investigation showed that the pyloric portion of the stomach was adherent to the under surface of the left lobe of the liver by fresh adhesions. The increase of peritoneal fluid was undoubtedly due to the inflammation attendant upon the walling off of the ulcer, which was perforated but became immediately adherent.

A posterior gastro-enterostomy was performed according to the method of Moynihan. A glass drainage tube was placed in the bottom of the pelvis. The tube was removed in twenty-four hours. The patient had an excellent convalescence, and when seen six months after the operation had gained 15 to 20 lbs. in weight, was hard at work and in perfect health, having no gastric symptoms.

Case II. J. S., aged forty years. A merchant. He was seen in consultation with Dr. John H. Gavin of Roxbury, at 10 P.M. on April 8.

The history was that he had suffered for years with indigestion and for several months had had his stomach washed out with occasional vomiting, but no hematemesis. He had lost considerably in weight. For several months he had been treated by one of our most eminent specialists in diseases of the stomach. His stomach had been washed out for three weeks. He had been on a liquid diet. He had made no improvement and for one week had remained in bed on account of an aggravation of epigastric pain. At one o'clock on the 8th of April he got out of bed and went to the back door to look out. While there he was seized with sudden severe pain in the abdomen. He vomited and crawled back to bed. He called Dr. Gavin, who saw him at 3 P.M. He found his pulse 90, temperature 101°, abdomen of board-like rigidity, tender everywhere, but much more tender in the epigastrium. He did not show any degree of shock. Dr. Gavin administered a quarter of a grain of morphine and saw him again at 9 o'clock in the evening. His condition had somewhat improved, his spasm was a little less, and he seemed more comfortable. The writer saw him at 11 P.M. and found him pale, sick looking, anemic, with no peritoneal facies and no marked shock. There was distinct spasm and tenderness in the epigastrium, shading off into other regions of the abdomen. The abdomen was retracted. There was no dullness. The tongue was moist. Pulse 90, temperature 101.4°. Owing to the fact that the vomiting, which was present at the beginning of the attack, had not been repeated, that the spasm had been decreased somewhat, that the pulse was not increasing in rate, and that the patient's condition was somewhat more comfortable, it was thought that, although he had evidently had a perforation, such perforation was walled off and had not entered into the general peritoneal cavity.

Operation was therefore deferred till the following morning, when he was moved to the Boothby Hospital and was operated upon at 8.30 A.M. His condition was

about the same as the night before. A median epigastric incision disclosed the whole pyloric portion of the stomach adherent by fresh adhesions to the under surface of the liver. There were fresh flakes of fibrin extending across the greater part of the anterior surface of the stomach, especially along the lesser curvature. There was an excess of serum in the peritoneal cavity. As in Case I, we had evidently to do with the perforations walled off by fresh adhesions and as in Case I, a posterior gastro-enterostomy was performed by Moynihan's method. Some difficulty was experienced owing to the fact that it was impossible on account of the adhesions, to draw the stomach wholly out of the peritoneal cavity.

The patient bore the operation well and had an excellent convalescence except for some suppuration of the abdominal wall. He took solid food on the fifth day and left the hospital in excellent condition at the end of two and a half weeks, eating more than he had for years, and without epigastric distress or inconvenience. Three months after operation he had gained markedly in weight and was in excellent general condition.

CASE III. A. R., fifty years of age in June. He was admitted to the City Hospital Relief Station on June 3, 1903.

The history was that he had always been constipated, his bowels moving only once or twice a week. For the past five weeks he had had pain in the epigastrium, which for three days had been severe. He had had no movement of the bowels, no chills or fever.

Physical examination showed a thin, worn-looking man. The pulse and temperature were normal, the tongue clean and moist. His chest showed diminished breathing on the left, bronchovesicular respiration at the right apex, and numerous râles through the chest. The abdomen was distended. There was dullness in the left hypochondrium, with marked tenderness and muscular spasm in this region. There was tympany elsewhere in the abdomen.

He was given a high enema, relieved of large masses of scybalæ, and became much more comfortable. He was transferred and admitted to the service of Dr. George H. Monks at the City Hospital and on June 10, there still being a tender mass in the left hypochondrium, which was very tender, he was operated upon by Dr. George H. Monks.

At operation Dr. Monks made an incision over the tumor and found the stomach adherent to the anterior abdominal wall and very much thickened. Separating it a perforation about a quarter of an inch in diameter was found on the anterior surface near the cardia, on the left. After walling off, the ulcer was infolded and a posterior gastro-enterostomy performed.

The convalescence was slow on account of a mural abscess, which was opened on the eighth day. He was discharged on July 24, six weeks after the operation. In August he returned on account of an abscess in the right lung. A small tumor developed in the scar of the abdominal wound at this time, which was excised and proven to be a small round-celled sarcoma. After convalescing from his lung abscess he went home and died at his home about the middle of December.[1]

This case is introduced here as an instance for subacute perforation and because it illustrates that in certain cases it is impossible to do a posterior gastro-enterostomy without separating the adhesions of the ulcer to the abdominal wall. It also illustrates the fact that the location of the pain and tenderness resulting from the perforation in the stomach depend on the situation of the ulcer, the symptoms in the three cases being as follows: Case I, tenderness in the right hypochondrium; Case II, in the epigastrium; Case III, in the left hypochondrium.

[1] This case has been published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Aug. 4, 1904.

CONCLUSIONS.

(1) The symptoms of subacute perforation of the stomach are similar to those of acute perforation, with the important exception that they are less violent and are not followed by collapse or by the development of general peritonitis.

(2) The location of the pain and tenderness depends upon the location of the ulcer and varies with it.

(3) The treatment should be, if possible, posterior gastro-enterostomy without breaking up the protective adhesions.

SENILE EPILEPSY.*

BY G. KIRBY COLLIER, M.D.,
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SENILITY or old age is classified both as a pathological condition, and as a purely physiological process of the organism. Cicero it was who first said that it was a pathological condition, but to-day we regard senility, with what might be called its normally pathological changes, as a physiological process, as much so as we do the evolution from childhood to adult life. There we recognize the transformation of the various tissues of the body to that degree, when the greatest amount of work is required of them. In childhood we see this progressive building up process beginning in fetal life, and continuing up to and beyond puberty, that is, until the eighteenth to the twenty-fifth year of life.

Senility, we note, has just as great extremes. In certain individuals, senile changes may begin as early as the forty-fifth year; in others not until the seventieth or seventy-fifth year. As a rule, the beginning, if we can say there is a beginning to this retarding functioning, occurs usually at the sixtieth or sixty-fifth year.

Cozalis stated that "One is of the age of his arteries." We see errors in this well-known statement; for instance, arteriosclerosis is seen in individuals suffering with an arterio-capillary-fibrosis, or endocarditis chronica deformans, who have not as yet passed the age of forty. In these cases we recognize the cause of the atheroma, but in the vascular changes incident with old age or senescence, the causes are not found so easily.

In the fibroid and calcareous degenerations found in the adult, the cause can be usually traced to alcoholism, lead poisoning, syphilis, gout, rheumatism, diabetes, and the chronic diseases of the kidneys. Heredity is also said to be an important causative factor, but in the involutional changes due to senility, this change is recognized, not as a disease condition, but as a necessary biological decline which is gradual

* Read at the Annual Meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics held at Boston, Mass., Nov. 22, 1904.

in its course. Senility is a normal physiological condition, as much so as is growth.

Among the senile changes seen are those of the heart and vessels, lungs, kidney changes, intestinal disorders, hepatic changes and the many modifications seen in the brain. The pulse rate of the normal aged is increased, but there is not that marked difference that is so often quoted; the average, we think, should be placed at about seventy-three per minute, but no higher. In the vessel wall is found the most marked change of senility. Here is seen the marked overgrowth of connective tissue formation with the subsequent deposition of calcareous salts beginning in the tunica intima of the vessel wall and coincidently affectnig the endocardial lining of the heart. As the result of this we also see fibroid changes in other organs, the smaller vessels being the first to undergo this change, and to the greatest degree, such as the liver and kidneys. The arterial circulation is thereby impaired, less of elasticity in the vessel wall with a corresponding increase of arterial tension, and an hypertrophy of the left ventricle due to the increased amount of work required of the heart, and a narrowing of the caliber of the smaller arteries and the subsequent impairment of the nutrition of the organs supplied thereby. This condition, arteriosclerosis, is almost constant in the aged. As a sequela of these arterial changes which are most paramount inisenescence, there is the result of this impaired nutrition. As evidences of atheroma of the aorta and coronaries, there is a myocarditis and angina pectoris; and gangrene of the extremities, especially in the aged, point to sclerosis of the vessel wall. As a result of the atheromatous changes in the large and small cerebral vessels, there are attacks of vertigo and periods of unconsciousness.

The symptoms of senility we know are more prone to make their appearance earlier in life in those who have any hereditary factors, tending not only to senility, but to any of the general systemic disorders, as tuberculosis, cancer, syphillis, rheumatism and others. Also as a result of senile changes we may find a recurrence of a preexisting disease, but it must be remembered that the aged are just as prone to the various maladies of life as the youth or adult.

Measles, smallpox, scarlet fever, bronchial pneumonia, pertussis, parotiditis, etc., are all classified as diseases of early life, yet we sometimes find the aged affected with the same. In this class might be also put typhoid fever, pneumonia, influenza, typhus fever, malaria, erysipelas, syphilis, phthisis, tabes dorsalis, apoplexy, hypochondriasis, melancholia, mania, paranoia; and epilepsy cannot be an exception. Cannot epilepsy be caused by the senile degenerations?

THE FREQUENCY OF SENILE EPILEPSY.

In Dr. Spratling's "Epilepsy and Its Treatment," he reports in a series of 1,302 cases, 23 of which had their first attack between the forty-ninth and sixty-ninth year; 11 of which began between the forty-ninth and fifty-ninth years, and 12 between the fifty-ninth and sixty-ninth, or 1.75% of the whole number.

Gowers, in 3,002 cases, found

71 cases	between	40–49 years	or 2.4%
40 „	„	50–59 „	1.3%
15 „	„	60–69 „	
1 case	„	70–79 „	.5%

In 2,222 cases he found heredity as follows:

Forty years and over, 134 cases, 40 showing heredity or 30%; 20–39, 496 cases, 187 showing heredity, or 37.7%; under 20, 1,592 cases, 661 showing heredity, or 41.5%.

In 70 males, over forty years of age, he also noted there was heredity in 21 cases or 30%. In 42 females, heredity in 15 or 35.5%. In this we see a gradual lessening of the hereditary factors from 41.5% to 30% in the aged.

This, of course, is due to a certain extent, by the preceding generations from whom most points of the family history can be obtained, having passed away.

In the cases of senile epilepsy many can be traced to traumatic origin, alcoholism or syphilis.

H. C. Wood goes so far as to state that "An epilepsy which develops after thirty-five years is not idiopathic, but is due to some organic brain disease, to the use of alcohol, reflex irritation or other causes, which in some cases may be so hidden as to be exceedingly difficult of recognition." He also says that 80% of all cases after thirty-five years are due to specific brain diseases.

This may be true, yet we cannot always find a definite causal relationship in some cases. In a series of 21 cases admitted to the Craig Colony, whose ages at the onset of the epilepsy ranged from forty-five to ninety years, the main facts may be found on the following page.

In analyzing these cases there is the decrease in the hereditary factors as noted in Gowers' statistics, and also the oldest case in the series is of good heredity, whereas seven of the nine cases developing between the forty-fifth and fiftieth years show evidences of mental enfeeblemeat and dementia. In all the cases the seizures were of the *grand mal* type. Six cases show atheromatous senile changes in the arteries, and a cardiac hypertrophy, and one was a hemiplegic. In only one case is there found alcoholism as a cause.

Below we give the histories in five cases of epilepsy in which the onset occurred between the forty-sixth and sixty-fifth years:

Case I. A farmer by occupation. Admitted to the Craig Colony in 1896. Social condition, widower. Has one son who is an epileptic whose seizures made their appearance previous to onset of the disease in the father. Seventy years of age on admission, and the first epileptic seizure occurred at the age of sixty-five years.

On admission, his mental state was clear, but mental processes were slow and imperfect, "reminiscent." Was fairly well nourished, muscles showing old age tremor. Hearing defective, and a marked arcus senilis in both irides. Speech slow and hesitating. Weight, 171 pounds. Has a double inguinal hernia.

Seizures are preceded by what the patient terms

No.	Age at onset.	Age on admission.	Heredity.	Probable cause.	Character of attacks.	Mental condition.	Physical examination.	Paralysis.
1	65	70	T.B. C.	Senility	G. M.–P. M.	Clear	Arcus senilis, both eyes	No
2	50	53	None	Senility	G. M.–P. M.	Fair	Cardiac	No
3	51	58	Alcoholism and Rheumatism	Alcohol and Heredity	G. M.	Memory poor	Normal	No
4	62	68	None	Senility	G. M.	Dementia	Mitral regurg.	No
5	46	48	None	Syphilis, Alcohol	G. M.	Normal	Normal	No
6	57	58	None	Senility	G. M.	Dementia	Arterio-fibrosis Phthisis Arcus Senilis	No
7	45	65	Insanity	Menopause	G. M.	Dementia	Mitral regurg.	No
8	47	49	None obtainable	Alcoholism	G. M.	Good	Normal	No
9	51	53	Neurotic family	Trauma	G. M.	Feeble minded	Normal	No
10	57	62	Alcoholism; migraine	Senility	G. M.	Enfeebled	Normal	No
11	45	48	Mother, brother, sister epileptic	Heredity	G. M.	Depressed	Normal	No
12	47	51	T. B. C. Paralysis	Cerebral Apoplexy	G. M.	Dementia	Mitral regurg.	1 hemiplegia
13	56	67	Alcoholism; Epilepsy	Heredity	G. M.	Senile dementia	Mitral regurg.	No
14	49	51	T. B. C.	Menopause	G. M.	Enfeebled	Normal	No
15	62 9/12	64	.....	Specific	G. M.	Enfeebled	Normal	No
16	52	72	.....	Trauma	G. M.	Dementia	Arteriosclerosis Mitral regurg.	No
17	47	50	Cancer	Unknown	G. M.–P. M.	Dementia	Normal	No
18	89	91½	Cancer	Senility	G. M.	Good	Arcus senilis	No
19	46	66	.....	Trauma (?)	G. M.	Slight dementia	Arcus senilis	No
20	64	69	Cancer, T. B. C.	Senility	G. M.	Some dementia	Mitral regurg., Arteriosclerosis	Impairment both legs
21	49½	55	None	Menopause	G. M.	Fair	Two aortic accentuated	No

		Heredity.		Mental Condition.			
Ages.	No. Cases	Yes.	No.	Trauma.	Good.	Fair.	Demented.
45–50	9	3	6	0	2	3	4
50–55	4	1	3	0	1	1	2
55–60	3	1	2	0	0	0	3
60–65	3	1	2	0	0	0	0
65–70	1	0	1	0	1	0	0
70–75	0	0	0	0	0	0	0
75–80	0	0	0	0	0	0	0
80–85	0	0	0	0	0	0	0
85–90	1	0	1	0	1	0	0

"chills" which are in reality, short periods of clonic spasms.

Age at present, seventy-eight years. Is of a senile appearance, with a marked kyphosis of the spine. An arcus senilis entirely surrounds both corneæ. Temporal arteries are tortuous. Marked atheroma of the radials. Face shows lack of expression, but no asymmetry. Slowness in movement, but no inco-ordination of upper extremities. Coarse tremor of hands. Has a staggering gait. Romberg symptoms. Patellar reflex absent. Ankle jerk absent. Plantar reflex present. Testicles sensitive. Has periods of mental disturbances, sometimes preceding, again taking the place of, or following a seizure or seizures, more frequently preceding the attacks. These periods are characterized by semi-systemized delusions and hallucinations of sight.

Since his admission to the Colony he has had 465 seizures, on an average of 58 attacks per year. During this time there has been a progressive mental enfeeblement, until now the patient is in a state of senile dementia.

Case II. An intelligent male, aged fifty-four years. Nativity, England. Occupation, bookkeeper. Common school education in England, after which he entered a banking house as bookkeeper.

Paternal grandfather, aged one hundred and one years, at death. Father died at age of seventy-eight years, and mother at age of seventy-two years. Maternal grandparents were both long lived. One sister died of scarlet fever in early life; another sister died shortly after trauma to the knee.

Patient has led a roving life, acknowledging alcoholism. In 1897, at age of forty-seven years, he was operated upon in New York City for what he states were "carbuncles" on the spine. On the second night following operation, patient had his first attack. Following this seizure, patient was paralyzed, he states, in both extremities, being confined to bed for about three months.

About six weeks after the first attack, he had a second, while walking on the street. He fell into an areaway, causing a lacerated wound over the right eye, and fracturing the nasal bones, the result of these injuries being plainly evident at this time.

Admitted to the Craig Colony in 1899, two years after onset of the disease, aged forty-nine years. Mental status, good. Heart accentuated second sound. Lungs, normal. Fairly well nourished. Loss of hearing in right ear and some impairment in left ear. Sight, defective. Speech is normal, but at times is of a stammering nature. Skin reveals large scar between the scapula — the seat of operation referred to above. Weight, 148 pounds. A symmetry of face. Reflexes not exaggerated. Atheroma of the radials present, but not marked. No arcus senilis. Good mental condition, patient being an excellent bookkeeper, having had entire charge of the seizure records of 900 patients for the past three years. General physical health is good. He walks to a nearby village, about

four miles distant, two or three afternoons a week.

Preceding an attack, he says that he has a "nervous feeling," or an impression of some impending danger, which is sometimes of long enough duration for him to return to his room. Oftentimes he is mildly automatic before, and almost always following a seizure. Since admission he has had 89 *grand mal* seizures on an average of 15 each year. There has been no marked change in his mental condition during this time. Following attacks there is, at times, a period of mental confusion which may continue for twenty-four or forty-eight hours.

Case III. This patient was admitted to the Craig Colony in 1902, aged fifty years. A farmer by occupation. Mother died of kidney disease at age of seventy years. Father died at the same age; cause of death unknown. Paternal grandmother aged eighty eighty-nine years at time of death.

Patient has an aged appearance, and his mental condition is one of dementia. Is unable to walk without assistance. Loss of co-ordination of muscles of extremities. Romberg symptoms. Is unable to preserve the erect position with the eyes closed and feet together. Right pupil is distorted and displaced as a result of an old injury from a splinter; loss of accommodation and loss of right reflex. Joints show some enlargement. Atheroma of radials and temporals, temporals being very tortuous.

First attack occurred at age of forty-seven years while patient was engaged as foreman on a railroad, second attack occurring one month later. No cause could be assigned to these. Has no aura. Since admission he has had 35 attacks, all of the *grand mal* type.

Case IV. Admitted to the Craig Colony in 1900, aged sixty-two. A farmer. Married. Father was a moderate drinker. Mother subject to headaches. First attack at age of fifty-seven years.

Mother about seventy years at death. Father aged sixty-seven years at death. Both well and hearty up to time of death. One sister died at about sixty years. Brother about sixty at death. Married. Had 11 children, 9 living; 2 died in infancy.

About twenty years ago patient states that he had a fall of about sixty feet from the roof of a building. As a result of this, he was in a hospital in San Francisco for about three months, but can give no account of his injuries. Was well and hearty thereafter. This occurred about eight years previous to his first attack.

His first attack occurred at the age of fifty-seven years, during the night. Was told in the morning that he had had a seizure. Wandered about the room as if in a nightmare. Attacks have never occurred during his waking hours, always while asleep.

General appearance is senile. Skin of a brownish hue. Hair gray and alopecia of vertex. No evidences of any constitutional disease. Slight facial asymmetry. No loss of enervation of facial muscles. High, flat, roofed palate. Hearing good for his age. No jaundice, flushing or cyanosis of skin. Reflexes not exaggerated. Station normal. No paralysis. No evidences of syphilis. Some enlargement of joints. Sight good. Has arcus senilis of both irides; react to accommodation and light. Regular in form and size. No discharge from ears. Marked atheroma of vessels. Varicosity of veins of lower extremity. His mental condition is one of primary dementia, and during the past five years, he has had 58 seizures, all of which occurred while he was asleep. He is a faithful worker at the Colony assisting the farmer.

Case V. Father died at age of ninety-five years of pneumonia. Age of mother at death, eighty-five; cause unknown. Maternal grandmother aged ninety-five at death. One brother died at age of sixty-two years, another at age of seventy-five. One sister died at forty. Two sisters living, aged sixty and fifty-two years respectively. No history of epilepsy, insanity, tuberculosis or alcoholism in progenitors.

Is a farmer by occupation and has been twice married. Two children died in infancy. Has two sons living, who are well and healthy.

Age of patient on admission to the Craig Colony, sixty-six years. First attack occurred at age of forty-six years, about six months after he had received what he calls a severe "strain." No history of head injury, and he states that he was in perfect health previous to onset of disease. Has always been temperate and denies venereal disease, no evidences of which are found. Seizures at first occurred every two months; at present every four weeks.

Aura, dizziness. Pupils are normal. Has a slight arcus senilis of both irides. No radial atheroma. Some impairment of peripheral circulation, skin being parchment like. Fairly well nourished. Knee jerks exaggerated. Wrist jerks normal. Mental condition fair. He has had nine attacks during the past ten months.

A patient, aged ninety-one years, was admitted to the Colony in 1903, who was in excellent mental condition even at that great age. He had been a prominent lawyer in his time, but retired from his profession at the age of seventy and engaged in farming. He denies the use of tobacco or alcohol.

Mother died at the age of eighty-one years of some intestinal disease. Father at age of eighty-six died of "gastric trouble." Paternal grandmother was aged ninety-eight at time of death.

There could be no history obtained of epilepsy, hysteria, insanity, tuberculosis or syphilis in the family. The patient had always been strong and healthy, attending to the duties of his profession until his retirement. At the age of eighty-nine he had his first attack. Was alone at the time. A short while previous to this, he had an attack of influenza which was at the time supposed to be the cause of this attack. During the past two or three years of his life, his seizures occurred once or twice in three months. Had no aura. At times attacks would occur which involved only the right half of the body. Following attacks, he had occasional periods of mild mental disturbance.

Clinical Department.

REPORT OF A CASE OF HEMORRHAGIC PERICARDITIS: ASPIRATION; RECOVERY.*

BY FREDERICK BRYANT, A.B., M.D., WORCESTER, MASS.

Mrs. H., a tall, slim woman of thirty-eight years, of unimportant family and previous history, was taken sick the morning of Oct. 25, 1904. She complained of severe pain in her left back, over the lower half of the scapula. This pain was much increased by a dry hacking cough. She would not allow herself to take a deep breath for fear of increasing the pain. There were chilly sensations in back and limbs, but there had been no distinct chill. Her pulse was 130, her temperature 103° and her respirations were 24. There was slight dullness over the lower half of the left back. A dry friction rub could be heard in this area on deep inspiration. The front was normal excepting a slight systolic murmur at the apex.

Oct. 26, the morning pulse was 140, temperature 103°, and respirations 25. The physical signs were

*Read before the Worcester District Medical Society, Jan. 11, 1905.

practically the same. Alarmed at the rapidity of the pulse and the marked prostration of the patient I requested Dr. McKibben to see her in the afternoon of the same day. He found the pulse 125, temperature 102.5° and respirations 25. He confirmed the physical signs in the back and also heard a pericardial friction rub. The next morning (Oct. 27) I was unable to discover any friction rub over the precordium. The heart area was not enlarged to any appreciable extent. The pulse was 110, temperature 102° and respirations 25. A series of herpetiform eruptions had appeared on her upper lip. The dullness over the left lower back had appreciably increased. Fine crepitant râles were heard on deep inspiration. Voice sounds and bronchial breathing were transmitted directly to the ear, in the middle zone of this area. A decided change was noticed in the condition of the heart. The sounds were not only rapid and weak, but had assumed a gallop rhythm. Considering this gallop rhythm an exceedingly serious omen, and as the chest signs were puzzling, I called Dr. Comey in consultation the following day (Oct. 29). Dr. Comey concluded that the signs in the left back could only be consistent with pleuro-pneumonia and he demonstrated a small amount of fluid in the left pleural cavity

Oct. 30, the pulse was 107, temperature 101.5°, and the respirations were 25. This day the patient was drowsy and desired to be let alone. Oct. 31, her condition was much the same except that she was still more drowsy and apathetic. The chest and heart signs were unaltered.

Nov. 1, the picture was entirely changed. The patient was decidedly worse. She was almost completely comatose. Her face was pallid, dusky and anxious. Her lower jaw was dropped and her head thrown back. She was breathing irregularly and in gasps. Her eyes were expressionless and dull. Her evacuations were involuntary. She appeared to me to be certainly moribund. The pulse was 150, and the temperature 101°. The pulse was weak and thready. The heart sounds still exhibited a well-marked gallop rhythm. The area of cardiac dullness was exceedingly enlarged and triangular, extending from well outside the left nearly to the right nipple, including the fifth interspace and extending up to the second rib. The precordium bulged and pulsated. There was also a distinct splash synchronous with each heart beat which I thought, at the time, to be caused by the heart splashing pericardial fluid. This splash could be heard by the unaided ear while bending over the patient. The nurse stated that she had heard the sound some time previous to my arrival.

In consultation with Drs. Comey and McKibben it was decided to aspirate the pericardium. We selected the largest hollow needle at our command, thinking that pus might possibly be present. Dr. McKibben inserted the needle at the fourth interspace one and one-half inches to the left of the sternum, with the result that what appeared to be clear blood flowed freely into the flask. The pulse was unchanged and the point of the needle was in a cavity, since it could be moved freely and was receiving no impulse from the heart.

Nearly a pint of fluid was removed which answered practically to all the properties of blood. It quickly formed a large clot pressing clear serum to the surface of the bottle. I regret to add that no bacteriological test was made of this fluid owing to our haste and anxiety for the patient, and no care was taken to keep the fluid from contamination.

Although the needle was large and dull, the patient was in so deep a coma that she did not once struggle or resist. Examination of the heart immediately after confirmed that the needle must have been in the pericardial cavity. The extensive area of dullness had disappeared. The splash which accompanied each heart beat was no longer heard excepting during inspirations. The precordium no longer bulged or pulsated, but instead there were depressions between the ribs.

For three days before the aspiration, and for several days after, the patient got one thirtieth of a grain of strychnia every two hours, day and night, and ten minims of the tincture of digitalis every three hours. The evening of the operation the pulse was 140, and the temperature 104°. The *bruit de gallop* had disappeared.

The following day (Nov. 2) the pulse was 120, and the temperature 101.5°. The evening pulse was 90, and the temperature 100.8°. The pulse was slowing so rapidly and was so irregular that the digitalis was omitted. This day the patient became conscious of all that was said or done about her. The evacuations became voluntary. On the third day (Nov. 3) a remarkable change was noticed in the heart's action while the temperature remained at 100°, the pulse dropped to 55, and continued to be irregular. The mixed signs in the chest were found to be rapidly clearing. There was less dullness and the bronchial breathing was less distinct. This evening the temperature was normal and patient complained of hunger.

The temperature never again rose above normal. On the following day (Nov. 4) the pulse dropped to 42, and was irregular. It was not till Nov. 9 that it reached 60 beats per minute. Nov. 12, she began to sit up in bed. All pain had disappeared. She did not cough. Her appetite was keen and her mind was clear. At the present time the patient is up and about the house and considers herself nearly as well as she was before her recent sickness.

In reviewing this case one wonders at the low temperature, the heart signs, and the hemorrhagic fluid. Until the second day after the aspiration the rapidity of the pulse was out of keeping with the temperature, but this is easily accounted for by the pericarditis. The fact that the respirations were never over twenty-five per minute, that there was no initial chill, that there was no prune-juice expectoration would go to show that the pneumonia was of very mild grade with small involvement and low toxemia. Bradycardia is not uncommon in recovery from acute infectious processes. The *bruit de gallop* is a symptom of grave prognostic importance, and death rather than recovery is the rule where it is present. The splashing sound, which was heard synchronous with each heart beat, I am now convinced was due to fluid in the stomach receiving its impulse from the pericardial effusion. The persistence of the splash during inspiration proves that the stomach contained a considerable quantity of fluid. The fact that blood was found in the pericardium renders this case decidedly extraordinary. A pleuro-pneumonia accompanied by a simple serous pericarditis is not so very uncommon. Osler found five out of one hundred autopsies. But hemorrhagic pericarditis had been associated for the most part with tuberculosis, carcinoma, or some grave and well-nigh fatal disease upon which was engrafted a hemorrhagic diathesis as in black measles, variola nigra, black diphtheria, virulent scarlatina, scurvy, etc. This undoubtedly is the rule, but there are certainly exceptions to this conclusion, as the case in hand, as well as a very few others

which have been reported, lead us to the belief that hemorrhagic pericarditis is not always fatal, neither is it so alarming a complication as popular and accepted conviction would lead us to believe.

Effusions gather in serous cavities slowly and gradually, but in this case I am confident that the blood entered the pericardium comparatively suddenly from the fact that it was not detected previous to Nov. 1, although the heart was examined twice each day, and from the fact that the patient was so desperately and decidedly worse upon the morning referred to. Is it not possible that a small erosion of the pericardial surface or the rupture of organized adhesions might give rise to this condition? Both the epicardial and the pericardial surfaces are deeply stained and extravasations are present due to the inflammatory process. Is it not possible that while these two surfaces are in apposition, a small erosion might be produced which, in turn, might open up a small pericardial blood vessel, and in this manner a hemorrhage take place into this pericardial cavity while the other mucous membranes remained intact?

In a careful review of the literature we are able to find twelve cases of hemorrhagic pericarditis which have recovered. A dozen cases seems a small number, but it is fairly large when we consider that paracentesis of the pericardium has been reported to have been performed, in all, less than one hundred times. These twelve cases from which a fluid was withdrawn, ranging from bloody to apparently pure blood, recovering permanently as they did, stand as an unanswerable argument that other bacteria than tubercle bacilli are capable of producing a hemorrhagic fluid. It has long gained authoritative acceptance "that the presence of a bloody fluid on aspiration is decidedly in favor of tuberculosis." In the case under discussion the bloody pericardial effusions appeared in an acute disease which was neither preceded nor followed by a single sign of tuberculosis. Sears reports a case of hemorrhagic pericarditis in which the culture gave a pure growth of pneumococci. I feel confident that a similar result would have been obtained if the fluid, in this case, had received a bacteriological test.

This experience would surely give one confidence in aspirating the pericardium whenever fluid is found to be present in sufficient quantity to embarrass the heart's action. In the present case I am very confident that had we not interfered, the patient would have lived only a few hours. Is there any valid reason why a pericardial is not susceptible to the same treatment as a pleural effusion? There is a certain awe or fear for so vital an organ. "It is hard to bring ourselves to interfere with the pericardial, as with the pleural cavity." It is recorded also that such a procedure has proved fatal. But for all this the feeling is gaining ground that the pericardium may be aspirated with reasonable safety. Roberts, in 1879, said: "I feel confident that patients have died and do die every year because the attendant has been too timid to thrust a trocar into the pericardium to relieve the enfeebled heart of the hydrostatic pressure which is endeavoring to prevent its very pulsation. The operation should not be delayed till the patient is worn out, the lungs engorged, and the pericardial converted into a pyogenic membrane, but should be thought of as it is in pleural effusions as soon as the inadequacy of drugs is evident. I would say paracentesis of the pericardium is certainly a justifiable operation; nay, more, it is, at times, imperatively demanded, and he who refuses to give the patient such a chance for his life, in proper cases, is as guilty as he who allows a child to die unborn because he delays the application of forceps." [1]

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

(Concluded from No. 16, p. 463.)

EXHAUSTION DISEASES OF THE NERVOUS SYSTEM.

EDINGER [4] in an interesting series of articles, discusses once again the theory which he advanced some ten years ago, that there are nervous diseases which develop because under certain circumstances the normal demands imposed by the performance of function is not met by a corresponding restoration within the tissues. The characteristic of this condition is a simple atrophy of nerve fiber. All diseases of the nervous system can be divided into focal diseases, toxic affections and exhaustion diseases. In healthy persons exhaustion is characterized anatomically within the cell by a disappearance of the tigroid bodies and perceptible changes in the medullated fibers. If the using up of tissue is too great, or the replacement is insufficient, there is more permanent and complete destruction of the cell and fiber. The glia proliferates to take the place of the degenerated nerve tissue. The process in all these diseases is identical, but the location differs. They are all progressive. These exhaustion diseases may arise on account of abnormal demands on the normal tracts, although there is normal restoration of tissue. In this way may be explained the various atrophies from disuse and the professional neuritides. In other cases there is not a sufficient restoration to meet the demands of normal functions. These cases are usually due to some poison, such as syphilis or lead. He gives a number of interesting observations of lead paralysis to prove that the paralysis first affects the muscles upon which the greatest demands are made, and shows the excessive use of the extensors of the wrist in the use of the

[1] The discussion which followed the reading of this report was participated in by Dr. C. C. Sears of Boston and Drs. Comey, McKibben, Greene, and S. B. Woodward of Worcester. The question arose in this discussion as to whether or not there was a pneumonia present in this case, as a large amount of fluid in the pericardium gives dullness in the left lower back and other signs closely simulating pneumonia. The view was also expressed that the remarkable slowing of the pulse was, in all probability, due to the digitalis, as there was hardly enough toxæmia present to produce so extensive stimulation of the vagus.

[4] Deutsche med. Wochenschr., Nos. 45, 49, 52, 1904; 1, 4, 1905.

paint brush. He gives many instances also of the effect of over-exertion in one part or another in exciting or aggravating certain special symptoms of tabes. The cause of the exhaustion may differ according to the nature of the poison. Examples of this second class of exhaustion diseases are polyneuritis, tabes, combined systemic diseases and general paralysis. Exhaustion diseases may also develop when different nerve tracts are from the outset not sufficiently developed to be able permanently to perform their functions, but atrophy prematurely — the abiotrophy of Gowers. The hereditary nervous diseases, many of the combined scleroses, amyotrophic diseases of the cord and medulla, primary nontabetic optic atrophy, and probably progressive nervous deafness, belong to this class. Several nerve tracts may be affected in these conditions, either simultaneously or successively, and various combinations may occur. The types are not always constant; thus tabes and general paralysis may often coexist, and tabes and spinal amyotrophy sometimes occur together. Combinations in the third group, however, are not observed, because here some definite tract is congenitally defective, while other regions are normal, and thus this tract becomes more easily exhausted, whereas poisons exert an influence upon the entire nervous system, and that part is affected which is most used. The old theory of a selective action of poisons, such as the selective action of lead upon the peripheral motor neurones to the extensors of the wrist, is regarded as no longer tenable; those neurones are affected because they are most exhausted by the demands put upon them. The therapeutic applications of this theory are obvious. With a given predisposition, toxic or hereditary, the possibility of exhaustion must be borne in mind. Thus tabetic patients should walk little, take only such exercise as does not fatigue, urinate every hour, wear dark glasses in bright sunlight, go to bed for a few days at any exacerbation of the disease, and fear any strain. By this means of treatment Edinger states that of late, for example, he has observed no vesical paralysis in tabes. In multiple neuritis absolute rest in bed is requisite; in mononeuritis fixation of the parts by splints. By careful application of this theory Edinger believes that we shall obtain greater results both in treatment and prophylaxis. [The theory thus advanced, with a wealth of illustration and argument for which space is lacking here, is interesting and suggestive, but it hardly seems absolute. In point of fact, in tabes for example, we still know very little as to the determining cause. Syphilis is most probably the chief, perhaps the sole, predisposing cause, but we know nothing as to why one syphilitic becomes tabetic and another remains well; nor, even though Edinger finds a history of exhaustion as the exciting cause of the symptoms in some cases of tabes, was there a greater amount of exhaustion than with other syphilitics who did not become tabetic. Or, to take one individual symptom of tabes — optic atrophy. The optic nerve is constantly stimulated during our waking hours, more than any other sensory nerve in the body. Why should not optic atrophy be the first and most constant symptom in tabes instead of being observed in only a small percentage of the cases? Why, furthermore, should exhaustion affect the sensory neurones under the influence of the syphilitic toxin, and the motor neurones under the influence of lead? Even on the hypothesis that to the exhaustion is added a congenital defect of certain nerve tracts, sensory or motor, lead tabes and syphilitic amyotrophy ought to be commoner affections. Nevertheless, the theory, although not fully adequate, is suggestive, and the therapeutic indications are of much promise. Certain of them, indeed, as rest in bed for tabetics and immobilization by a splint in mononeuritis, have long been recognized as beneficial. REP.]

ARGYLL-ROBERTSON PUPILS.

Reichardt[5] calls attention to a small tract of fibers in the posterior columns of the cord, between the columns of Burdach and of Goll, known as Bechterew's Zwischenzone. It seems to vary somewhat in size and arrangement and is possibly connected with Schultze's comma field. It seems to be composed of endogenous fibers and not of fibers which come from the posterior roots. In a general paralytic who presented no other physical symptoms, except pupils which did not react to light, Reichardt found no other changes in the cord, except a degeneration in this zone, from the second to the sixth cervical segments, but most marked in the third segment. He, therefore, studied thirty-four other cases of general paralysis, with especial reference to the pupillary phenomena and the changes in this zone. In eight cases the pupils did not react to light, and the knee jerks were normal or increased; in ten others the pupils did not react and the knee jerks were lost. In all these cases there was a degeneration in this special zone in the third cervical segment, in some associated with general degeneration of the posterior columns, but in others where there were no changes in the root zone of the cervical cord or in the posterior columns anywhere in the cervical region. In ten cases the pupils were normal and the knee jerks normal or increased, and in two others the pupils were normal and the knee jerks lost. In all these cases this special zone was not degenerated, although in one case in particular there were very extensive tabetic changes in the posterior columns of the cervical cord, including the root zones. In this case a considerable number of normal fibers were found in the Zwischenzone. In four cases of slow reaction slight changes were found in the zone. Reichardt, therefore, concludes that in all cases where the pupil does not react to light, but does react to accommodation, there is a degeneration of the fibers lying between the columns of Goll and Burdach, especially in the ventral portion in the third and second cervical segments. As the muscles of the iris need

[5] Archiv für Psychiatrie, xxxix, 324, 1904.

few fibers for their innervation, this area of degenerated fibers is small, scattered, and may easily be overlooked. These fibers are probably of endogenous origin, since they are sometimes found degenerated when the rest of the cervical cord, and especially the posterior root fibers, are intact. This is an important fact in its bearing upon the pathogenesis of tabes, since it indicates that tabes is something more than a degeneration of the spinal ganglia and the posterior nerve roots and their axones as they pass up the cord. Reichardt advances the hypothesis that these fibers convey impressions from the skin to the centers in the lower medulla which inhibit dilatation of the pupil and the light reflex, Bach's superior cilio-spinal center. When these impressions are no longer conducted to the center, the pupils cease to react to light. The theory that the loss of the light reflex is due to changes in the ciliary ganglia is discarded because the ganglion has been found perfectly normal in some cases where the light reflex was lost. In other diseases of the cord besides tabes and general paralysis, especially in syringomyelia, these same pupillary phenomena may occur, if this zone of Bechterew's be involved, but in many such diseases, — hemorrhage, injury, tumor, — death is likely to occur from paralysis of the phrenic nerve before pupillary changes can be noted. In all cases the condition of the pupils should be observed frequently up to the last.

PSEUDO-TUMOR OF THE BRAIN.

Nonne[6] states that there are types of disease in which our present experience and knowledge warrant the diagnosis of tumor of the brain, but the further course shows that the diagnosis was not correct, and we are unable to tell why the diagnosis was wrong. These cases either recover completely, or, if they terminate fatally, the autopsy shows no lesion. In support of these statements Nonne gives the details of a number of cases. Two cases showed right hemiparesis with increased tendon reflexes on the right side, optic neuritis, a gradual onset of the paresis, headache and nausea. The patients gave no evidence of syphilis, arteriosclerosis or anemia; they had previously been healthy and had no fever and showed no cause for abscess or pachymeningitis. Both made a complete and permanent recovery under expectant treatment. Three other cases had headache, vomiting, somnolence and stupor, slow pulse and choked disc, and later weakness of one side of the face and cerebellar ataxia. There was no evidence of syphilis or arteriosclerosis. All recovered under inunction, but in one case some post-neuritic optic atrophy persisted. The sixth patient had attacks of loss of consciousness, with spasm of the right arm, and later of the face and leg, tenderness on percussion over the left parietal, optic neuritis, right facial paresis, exaggeration of the tendon reflexes on the right. She was trephined, but nothing was found. She made a complete recovery, except for an occasional slight convulsion. A seventh patient had left hemiplegia and hyperesthesia, optic neuritis, with hemorrhages, somnolence, mental impairment, increased pressure on lumbar puncture, vomiting and headache. Under mixed treatment he recovered in two months and was well three years later. There was no evidence of syphilis or any intoxication or infection. The eighth patient had headache, apathy, vertigo, vomiting, a slow pulse, increased pressure on lumbar puncture, optic neuritis, paresis of the left face and arm and right external rectus, and a Babinski reflex and clonus on the left. He also recovered under mixed treatment. In all these cases the diagnosis of tumor seemed warranted, yet they all recovered. These cases, while strongly supporting Nonne's claim, are not as absolutely convincing as another series of four fatal cases which he reports. The first case had headache, vertigo, slight dilatation and more sluggish reaction of the right pupil, optic neuritis, left facial paresis and ataxic gait. She recovered completely, except for slight optic neuritis, and remained well for two years and a half. Then, after slight headache for a few weeks, she died suddenly. There was no autopsy. The second case had ataxic gait, headache, apathy, slow speech, intellectual slowness, slow pulse, optic neuritis, increased pressure on lumbar puncture, somnolence, left-sided paresis, stupor, vertigo, tinnitus and deafness. He gradually recovered, except for some weakness of the legs and slight mental failure, but died six months later of intercurrent disease of the heart and bronchi. Nothing was found in the brain macroscopically or microscopically, except a few slight patches of arteriosclerosis in the vessels at the base, and there were no traces of hydrocephalus. The third patient had headache, vomiting, sluggish pupils, optic neuritis, slow pulse, weakness and exaggerated reflexes on the left, ataxic gait, progressive dementia, convulsions and status epilepticus, sensitiveness of the skull on percussion, and apparent right hemianopsia. She became unconscious and died. The autopsy showed nothing whatever. The fourth case had headache, nausea, vomiting, optic neuritis, right facial paresis, dilated and sluggish pupils, slight paresis of the right arm, ataxic gait and slow pulse. The headache grew much worse so that she was trephined with fatal results. There was marked anemia at the autopsy and some arteriosclerosis, which was only insignificant in the brain. The brain showed nothing beyond this. In both series of cases all the possibilities of syphilis, infection, toxemia, hydrocephalus, encephalitis, meningitis and thrombosis were carefully considered and were rejected. Nonne, therefore, feels justified in concluding that there are cases which at first behave like cases of brain tumor, either of one hemisphere or of the posterior fossa, but which completely recover, either spontaneously or under mercurial treatment, although there is no suspicion of syphilis. Sometimes optic atrophy is left as a permanent symptom. The suspicion of idiopathic hydrocephalus is not jus-

[6] Deutsche Zeitschr. f. Nervenheilkunde, xxvii, 169. Nov., 1904.

tified. The cases which came to autopsy showed no changes in the brain, and the cases of hydrocephalus, observed from various causes, had pronounced basal symptoms and ended fatally or in rapid recovery. These cases are of importance in modifying the absolutely unfavorable prognosis usually given when the diagnosis of cerebral tumor is made, and in explaining the alleged recoveries after palliative trephining for cerebral tumor. They explain also the apparent cures in 11 cases out of 122 reported by Bramwell [7] some years ago.

PUERPERAL PARALYSIS.

Von Hösslin [8] has made an elaborate study of 279 cases of paralysis of central origin occurring in connection with the puerperal state. Hysterical paralyses during pregnancy and in childbed should be diagnosticated only when there is very definite evidence of the functional character of the disease and when any organic change in the nervous system can be excluded. Pregnancy and its consequences seem, on the whole, an unfavorable soil for the development of hysterical paralyses, which are surprisingly rare, considering the psychical conditions associated with pregnancy which would seem to favor hysterical manifestations in the predisposed. The prognosis of such paralyses seems favorable and they involve no danger to the child. No attempt should be made on account of them to induce premature delivery. Pregnancy seems to have an unfavorable influence upon myasthenia gravis (asthenic bulbar paralysis), and childbirth seems to have a still worse effect, but the relation between pregnancy and the disease is seldom mentioned in the reported cases. Apoplexy is of not infrequent occurrence. The age of the patient seems of little influence, but it is more apt to occur in the earlier pregnancies and in the latter half of the pregnancy, or during or after childbirth. The auto-intoxications of pregnancy may exert an unfavorable influence on the structure of the blood vessels and thus predispose to hemorrhage. The variations in blood pressure certainly play a great part. If the apoplexy occurs during labor, the prognosis is much more likely to be fatal, but no case was found in which, when apoplexy occurred during pregnancy, it recurred during labor. As long as the mother's life is not endangered, there is little danger to the child, and, therefore, labor need not be induced. Albuminuric paralyses are due either to cerebral edema or to cerebral hemorrhage. Hemorrhage is favored by the increased arterial tension and by the convulsions of puerperal eclampsia, and fatal hemorrhages are not infrequently found at the autopsies of cases of eclampsia. Albuminuric paralyses occur in the latter half of pregnancy, and usually at its close or during the puerperium. They often follow a convulsive attack. In the albuminuric cases there is grave danger to the child, if the paralysis comes on before birth. Paralyses from cerebral thrombosis are much less frequent. These usually occur after delivery and are probably favored by great loss of blood and infectious processes. The prognosis is rather more favorable than is that of hemorrhage. Embolism is less common, and is due to a puerperal endocarditis or to pre-existing endocarditis made worse by the puerperal state. It may possibly arise from uterine inflammation or phlebitis. Paralysis may also be due to other diseases of the brain, tumor, encephalitis or general paralysis, but here the association is of course accidental. The conditions must, however, be considered in a differential diagnosis. Pregnancy favors the development of deciduoma malignum, which may give rise to a metastasis in the brain. Encephalitis also may arise during the puerperal state. Of diseases of the spinal cord which have existed before pregnancy tabes and progressive muscular atrophy seem to be uninfluenced by either pregnancy or parturition, except that the labor is sometimes painless in tabes. Multiple sclerosis, however, is sometimes made worse. Various spinal affections, such as tumor and gliosis, may develop during pregnancy without having any connection with it, but sometimes pregnancy seems to develop the symptoms of a latent spinal disease. Other forms of spinal disease seem to be brought on by pregnancy. Spinal caries and its resultant paraplegia seem to be excited in some instances by pregnancy. The loss of blood and infectious processes are of much importance in the development of spinal troubles. Spinal apoplexy and infectious or toxic myelitis are the most important affections. Multiple sclerosis may also develop. In addition to these there is a peculiar form of recurrent myelitis which comes on with successive pregnancies and gets well after delivery. Von Hösslin reports a personal case in which the patient had five attacks, three in connection with pregnancy, recovering from all. The pathogenesis of the spinal affections occurring as a result of pregnancy seems to be chiefly toxic. In regard to the influence of central paralysis upon conception, pregnancy and labor, it seems probable that the uterus is capable of rhythmical contraction if separated from the spinal cord, but the contractions are less regular and probably less complete. Conception may occur not only in cerebral cases, but even in spinal diseases and complete paraplegia, although in some spinal cases the sexual desire is lost. Pregnancy is usually unaffected, but the patient may not be conscious of the symptoms. In some very severe cases of paraplegia there may be premature delivery. In cerebral paralyses labor is unaffected, but in spinal paralysis it may be delayed or painless, although usually labor is normal. The subject of the peripheral paralyses of pregnancy is to be discussed in a future paper.

[7] Brain, xxii, 1, 1899.
[8] Archiv für Psychiatrie, xxxviii, 730. 1904.

ACCORDING to the *Journal of the American Medical Association*, the city of Strasburg, Germany, is discussing the establishment of a central office to which physicians are to report all cases of tuberculosis among their patients.

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

STATED MEETING HELD JAN. 31, FEB. 1 and 2, 1905.

(Concluded from No. 17, p. 500.)

SECOND DAY.— (Continued.)

CONSERVATIVE PERINEAL PROSTATECTOMY; RESULTS OF TWO YEARS' EXPERIENCE.

DR. HUGH H. YOUNG of Baltimore said that in using the word "conservative" he would not have it understood as opposed to radical surgery, but he simply meant the conservation of those structures which were in no way concerned in the obstruction to free micturition, *i. e.*, the preservation of the urethra and ejaculatory ducts. He related his experience with the suprapubic route and Bottini's operation, and a number of unexplainable failures led him to turn his attention to the perineal route. He had devised a metallic instrument which he considered even better than that of Parker Syms. The form of the perineal incision was of no particular consequence, but he usually made his cutaneous incision so as to give the best exposure to this region. He used an inverted V, with the apex over the posterior part of the bulb of the urethra and the branches extending to a point between the anus and the ischial spine on each side. This incision, though only carried through the superficial fascia, allowed the rectum to be retracted backward with ease giving a good exposure.

This procedure had proven applicable to all forms of median lobe enlargement. In some cases the median enucleation might have been more quickly accomplished by the suprapubic route, but the operation described gave prospect of a shorter convalescence and less risk, and he was able to get excellent anesthesia by spinal cocainization of the perineum, whereas he had failed to get good results for the suprapubic route. In seventy-five patients operated upon during the past two years he had had no deaths, and normal urination had resulted in all but two instances. Epididymitis had been of extremely rare occurrence. Among the advantages offered by this operation were, that the prostate was attacked from the nearest point, and the whole obstruction was in better view; that he was enabled to preserve the urethra and ejaculatory ducts and avoided injuring other structures more successfully than when he used other tractors; that the introduction of a small instrument did not add to the gravity of the operation; that the incision was used for drainage and did not prolong convalescence, and that the sexual power was preserved in a fair majority of cases.

DR. ALBERT VANDER VEER of Albany said that Dr. Van der Poel of New York, who arranged the symposium, should be congratulated upon his success, and that he did not call to mind any meeting in which any subject had been so thoroughly presented as had been in the papers read. He said he was able to look back on many years of work on the prostate and he felt particularly grateful for being able to acquire so much valuable knowledge as he had during the reading of these papers. He wished first to emphasize the importance of a correct diagnosis and to be certain that one was dealing with an actual prostatic enlargement. Dr. Chetwood's paper he thought to be particularly valuable because he had pointed out some points which accounted for non-success of operations in certain cases. Dr. Vander Veer went back fifteen years when a positive diagnosis was made of enlargement of the prostate. Dr. MacDonald and he performed an operation with an instrument like a drawing-knife, removing the middle lobe, and they had remarkable successes. He thought that if they could be positively sure that there was an enlargement then something could be done, but a correct diagnosis should always be made first. The various methods proposed now led him to believe that the operations for the removal of the prostate, when once it was decided that this was necessary, were not quite perfect. He believed some respect should be shown the catheter, and that such cases as were described by Harrison could be relieved by the use of a large sound and the use of the catheter. In all the papers read he said he had noted a conservative tendency, a tendency to retain and restore the function of the organ or parts of an organ. He contrasted the treatments advocated to-day with those advocated a few years ago when removal of the testes or resection of the vas was done. He agreed with what Dr. Young had said about removing this gland without tearing it too much; one should get it out as neatly as possible and with as much care as was exercised in the removal of any other part of the body. He did not believe it was absolutely necessary to preserve the entire prostatic portion of the urethra although it was wise to do so if possible. The operation when done from above made it possible to bring under observation such conditions as a saculated bladder, or a bladder with a calculus hidden somewhere, and one had such a good chance to see the steps of the operation. The importance of good drainage, as emphasized by Dr. Lilienthal, was so very great in these cases and this he looked upon with a great deal of earnestness. After these operations an effort should be made to get the patients out of bed early; they should be made to sit up and urinate; their confidence should be restored to them; these were great aids in assisting in their restoration to health. As to the possibility of entering the rectum he hardly thought it was done often by the perineal route. He had a great deal of confidence in the instrument presented by Dr. Young and he believed it was better than taking hold of the prostate and pulling with the volsellum forceps; that instrument enabled one to bring the prostate down and attack it at its lowest point, or most prominent point. He believed that no department of surgery had made such vast strides as had been effected in prostatic surgery.

DR. SAMUEL ALEXANDER of New York said that in 1894 he first made his contribution on operations upon the prostate for prostatic enlargement and, at that time, prostatectomy was on the decline while castration was in the ascendency. It seemed to him strange, the revulsion of feeling which had taken place during the past ten years. He believed that it was only right that all honor should be given to McGill of England for placing prostatectomy for the first time upon a proper surgical basis, especially as he had been impugned by one of his own countrymen. All honor was due McGill for originating the idea, and the strong character shown in carrying it out and defending it against opponents. The suprapubic operation of McGill was the suprapubic operation of to-day with this exception, that men were more skillful to-day because they knew more of the anatomy and surgical technic, but the operation, so far as the principles were concerned, was McGill's, and consisted in the enucleation of the prostate by the suprapubic incision. He said he was surprised at the credit given Dr. Gouley, who performed his operation for the removal of large masses by the fingers, and was in truth not the same operation. In 1894 when the question of perineal operations came up for consideration, the only operations then done on a strictly surgical basis were performed by Watson and Belfield, who tore portions of the prostate out through

the perineal incision; through this median incision attempts were made at enucleation. Dr. Alexander said he tried in 1894 to show the anatomy of the parts that were affected by prostatic enlargement, and he feared that, by his persistence, he bored many of his hearers with his magic lantern exhibitions. He had tried to show that they did not know much regarding the anatomy of those parts and, therefore, their results were bad. Surgeons who read papers to-day knew far more of this anatomy than they did then. Why? Because they operated upon more cases and learned more each time. He ventured to say that Lilienthal, Meyer, Young, or other surgeons who did prostatic work would acknowledge that their results were far better in the sixteenth case than in the first case; that where they tore the mucous membrane in the earlier cases, they now preserved it intact. Two things requisite for success were, first, an accurate knowledge of the relations of the prostate to the vesical neck, and secondly, a knowledge of the layers of the pelvic fascia of which the capsule of the prostate was composed. When one believed the prostate had been entirely enucleated, he said it had not been done, because one would leave behind a portion which lay between the urethra and the rectum.

DR. WILLIS G. MACDONALD of Albany said he was deeply interested in the discussion which, from the standpoint of progress, represented much. He said he had labored in this field for twenty years and he believed he had tried every method that had been advocated for the treatment of enlargement of the prostate. He then briefly reviewed these various methods, the earlier methods of Gouley, castration, section of the vas, etc., to be followed by operation with an instrument like the drawing kinfe as referred to by Dr. Vander Veer; all these various methods yielded him varying results, none of which could be recommended as a good surgical procedeure, in the conservative treatment of hypertrophy of the prostate. He said that up to the present there were many who were trying to establish, under the varying circumstances, the catheter life. In speaking of the perineal route of attacking the prostate in cases of enlargement he believed that the more recent investigations had conclusively shown that this was to be recommended as a conservative procedure, when one came to residual urine, and this appealed to him to a great extent. The results obtained by Dr. Watson, by Dr. Goodfellow, by Dr. Young, and others had shown how scientifically they could attack the prostate, and he could not really understand how any one could skillfully, accurately and successfully remove the prostate unless they were seeing something of what they were doing. He said he stood there distinctly as an advocate of the plan carefully carried out on an anatomical basis, planned upon the anatomy of the perineum, and he emphasized the fact that the prostate should *not* be attacked by touch but under the direction of the eyes. Technically he believed that the perineal attack upon the prostate was the most accurate, but the other forms of operation, while they met with success in the hands of skillful specialists, could not be received by all. He closed his part of the discussion by stating that he could see no reason why a man should climb with a lantern in his hand to the roof of a house, go down through the scuttle, when the front door was right at hand.

DR. PARKER SYMS of New York believed that this should be a very memorable occasion in the discussion of the subject of the radical surgical treatment of prostatic obstruction, one of the most foremost questions in surgery to-day. He said he had learned more in the discussion at this meeting than he had at any previous meeting. He said that much credit should be given Dr. Alexander for being the foremost in reviving and keeping alive this operation under discussion. He believed that Goodfellow of San Francisco had followed Gouley, but that Watson of Boston antedated them all in this field. Many had followed Gouley's method of making a median incision in the perineum, opening the urethra in its membranous portion on a guide, then introducing the finger to the neck of the bladder and commencing the enucleation of the prostate; this Gouley had recommended as far back as 1884. He said he had begun the operation in 1892 and had published seventy odd cases without a death. The operation he performed was not a blind and senseless one, but a true enucleation of the gland from the sheath. So far as he knew the work of Alexander, which was a perineal prostatectomy aided by a suprapubic incision, was the most scientific and successful work that was being done. It seemed to him, though, that the suprapubic opening into the bladder for purposes of reaching the prostate was entirely unnecessary and unscientific; at that time he devised a means of reaching the prostate without opening the bladder above. He devised a retractor (he demonstrated this instrument) which consisted of a rubber bag on the end of a rubber stem which was to be introduced into the opening in the membranous urethra, then distended and by its pressure upon the prostate held it in place so that its enucleation was readily accomplished after the sheath had been opened. At that time he really felt that some such aid was necessary, but he had learned since that it was not warranted and he could now enucleate the prostate gland in from five to six minutes through a median incision in the perineum with but little damage to the patient and without subjecting him to much shock. He believed that Chetwood placed the operation upon a scientific and surgical basis. As Dr. Syms performed the operation he made a median incision through the membranous urethra; he then introduced his finger through this and dilated the neck of the bladder; then the retractor was introduced and made proper pressure. The incision was made with but one sweep of the knife and the rest of the operation was made merely by blunt dissection. When the sheath of the prostate was reached it was opened, usually on each side, by a vertical incision, when the prostate presented itself. The enucleation in some cases could be effected in from thirty to forty seconds, although in other cases a longer time was required.

THIRD DAY, THURSDAY, FEB. 2.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year: President, Dr. Joseph D. Bryant, New York; Vice-President, Dr. Herman R. Ainsworth, Addison; Secretary, Dr. Frederick C. Curtis, Albany; Treasurer, Dr. Ogilvie D. Ball, Albany.

Recent Literature.

Blood Pressure, as Affecting Heart, Brain, Kidneys and General Circulation. A practical consideration of Theory and Treatment. By LOUIS F. BISHOP, A.M., M.D., Physician to Lincoln Hospital and French Hospital, New York, etc. New York: E. B. Treat & Co. 1904.

This is a duodecimo of 112 pages. The author was led to write this little book by being impressed with the observation that "under the strain of modern life, many other causes of dis-

ease having been eliminated, disorders of the circulation dependent upon altered blood pressure have become very important." He has abstained from a consideration of the mechanical measurement of the actual pressure in the vessels, and endeavors to emphasize mainly "the clinical relations of blood pressure as interpreted in the light of clinical experience." The author believes that "the failure of circulation may be due to functional causes as much as to a condition represented by appreciable structural change; that the teaching of modern science has been too much in the direction that phenomena can be wholly explained by structure."

There are in the course of these pages many extracts from articles previously published in medical journals.

Dr. Bishop is unquestionably correct in his estimate of the importance of his subject, to which he has made a contribution not without value.

The American Year-Book of Medicine and Surgery, being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Textbooks of the Leading American and Foreign Authors and Investigators. Collected and arranged with critical editorial comments, under the general editorial charge of GEORGE M. GOULD, M.D., by A STAFF OF ASSISTANTS. Two octavos of 700 pages each, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1905.

This Year-Book in two volumes, one for Medicine and one for Surgery, offers its usual attractions. There have been some changes in the corps of sub-editors, though less than last year, which means merely that other good men have taken the place of some good men who have retired. The loss of Dr. S. W. Abbott is referred to in appreciative terms. Especial attention has been given again this year to prefacing the chapters with a summary of the more important advances and discoveries of the year. This has proved itself a serviceable addition. The increasing amount of literature to be abstracted has not been allowed to unduly increase the bulk of the volumes. Dr. Gould's Year-Book has succeeded because it deserves to.

Diseases of the Liver, Gall-Bladder, and Bile-Ducts. By H. D. ROLLESTON, A.M., M.D. (Cantab.), F.R.C.P., Physician to St. George's Hospital, London; formerly Examiner in Medicine at the University of Durham, England. Octavo volume of 794 pages, fully illustrated, including seven colored insert plates. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

Dr. Rolleston has for some twelve years past paid special attention to diseases of the liver both from the clinical and pathological points of view. The present volume is the result of these studies and observations, some of which have already appeared in various periodicals, transactions and encyclopedias. For the sake of reducing bulk, the usual introductory chapter on the anatomy and physiology of the liver has been omitted, and the author begins immediately with anatomical abnormalities and then passes on to post-mortem appearances, acquired deformities and displacements. With thirty-five pages devoted to these preliminaries, one enters immediately upon the diseases of the liver, beginning with the functional. Cirrhosis of the liver is very fully dealt with, occupying 160 pages. The book is worthy of Dr. Rolleston's reputation. The mechanical part of it is creditable to the publishers.

A Dictionary of New Medical Terms, including upwards of 38,000 words and many useful tables, being a supplement to "An Illustrated Dictionary of Medicine, Biology, and Allied Sciences." By GEORGE M. GOULD, A.M., M.D., author of "The Student's Medical Dictionary," "30,000 Medical Words Pronounced and Defined," "The Meaning and the Method of Life," "Borderland Studies." Editor of "American Medicine," etc. Based upon recent scientific literature. Philadelphia: P. Blakiston's Son & Co. 1905.

This volume of 571 pages is a supplement to the author's previous Dictionary of Medicine, Biology and Allied Sciences. The aim of this new book is to bring the terminology of medicine and allied sciences up to the present date. The necessity for this is illustrated by the fact that in a single decade upwards of 30,000 new terms have been devised. Detailed comment on this new monument to Dr. Gould's industry is not necessary. His well-known interest in this type of work finds further illustration in the evident care which has been exercised in the preparation of this supplementary volume. As a lexicographer Dr. Gould stands high, as the somewhat extraordinary sale of his various dictionaries demonstrates. This new volume is not illustrated, but contains various useful tables and detailed definitions.

Biochemistry of Muscle and Nerve. By W. D. HALLIBURTON, M.D., F.R.S., Professor of Physiology, King's College, London. Philadelphia: P. Blakiston's Son & Co. 1904.

The summary of scientific investigation by the investigator himself rarely fails to be inspiring; the reader treads the frontier of knowledge in the company of an experienced guide. Professor Halliburton has printed in this volume the substance of his Herter lectures, delivered in New York in 1904, on the problems of biochemistry with which he has long been identified. The earlier chapters on the composition of muscle, the nature of heat rigor, muscle pigments, ferments, and extractives will probably interest chiefly the special student; but the chapters on chemical changes accompanying muscular contraction, metabolism in nervous tissues, and the effects of high fever temperatures in coagulating nerve proteids, will interest the general medical reader as well. The two final chapters are devoted to the chemical pathology of general paraly-

sis and other degenerative nervous diseases, and to the much-discussed question of the degeneration and regeneration of cut nerves. The book is well illustrated. The exposition is simple, clear and direct.

Lectures to General Practitioners on the Diseases of the Stomach and Intestines, as well as the allied and resultant conditions, with modern methods of diagnosis and treatment. By BOARDMAN REED, M.D., Philadelphia, Pa., Professor of Diseases of the Gastro-intestinal Tract, Hygiene and Climatology in the Department of Medicine of Temple College, Philadelphia; Attending Physician to the Samaritan Hospital. E. B. Treat & Co., Publishers, 241–243 West 23d Street, New York.

This is an octavo volume of 1,024 pages. It presents the observations of a clinician with large experience who has also known the leading men throughout the world in his specialty and has read the modern works upon the subject. As a rule, the lectures are practical, suggestive in the line of treatment and conservative. Complicated methods are deplored and there is little space wasted in describing such. As electricity is rarely here employed in the treatment of diseases of the gastro-intestinal tract, it is interesting to learn the views of a champion of its use.

Most of the lectures are readable, but too often an original article by the author, published several years ago, is inserted in the text without change. The reader would have appreciated the substance of the article far more if it had been rewritten. The volume is not at all remarkable, but it does contain many useful hints.

Uric Acid: An Epitome of the Subject. By ALEXANDER HAIG, M.A., M.D., Oxon., F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women. Philadelphia: P. Blakiston's Son & Co. 1904.

Diet and Food. Considered in Relation to Strength and Power of Endurance, Training and Athletics. By ALEXANDER HAIG, A.M., M.D., Oxon., F.R.C.P., Physician to the Metropolitan Hospital, and the Royal Hospital for Children and Women. Fifth edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

In this small volume of 158 pages Dr. Haig has epitomized the contents of his larger work on the subject of uric acid. He has attempted to express in brief compass the significance of uric acid to clinical medicine, but warns his readers against depending too much upon this statement for a complete understanding of the subject. Dr. Haig's views on the subject of uric acid are widely known to the profession, and this book merely presents the same views in condensed form. Its brevity is its recommendation.

Five editions of this brief consideration of the subject of Diet and Food have been demanded in six years. The author reiterates his views and discusses certain physiological problems on the basis of his well-known theories.

THE BOSTON

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THURSDAY, MAY 4, 1905.

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PYLORIC STENOSIS IN YOUNG BABIES.

PYLORIC stenosis in nursing infants may show itself in two forms; either as a stenosis resulting from a congenital hypertrophy of the pylorus, or a stenosis from muscular contraction. To Hirschprung is due two of the most completely reported cases of hypertrophic stenosis. This form is due to a malformation, while spasmodic stenosis appears to depend upon a reaction of the pylorus against hyperchlorhydria so frequently met with in nursing infants. Within the last year Méry has accepted this theory and contends that pyloric stenosis during early life is due, in the greater number of instances, to contraction of the pylorus.

A number of German surgeons do not admit this condition of affairs, and in 1902, Kehr and Trantenroth stated that they were not able to observe a single spasm during operation, and the disappearance of the obstruction did not occur after complete narcosis. They believe that there is always a mechanical obstruction arising from a true tumor of the pylorus.

It is quite true that in these cases of stenosis, like stenoses in general, the muscular element plays its part and there is both a mechanical obstruction and a spasmodic obstruction, both factors becoming united, resulting in closure of the pyloric orifice.

Beside these types of stenoses, the symptoms of which never fail to show themselves a few hours after birth, there are others which may be termed progressive stenosis, but the clinical history amounts to about the same in all cases. The subject is usually about three or four weeks old, he has progressively lost flesh, nursing is interrupted by vomiting and occasionally the infant

has had liquid stools. An ordinary dyspepsia is usually the diagnosis, but the vomiting becomes more frequent and every form of treatment remains without result. The infant vomits freely upon every attempt at deglutition.

The matter vomited is composed of food, and occasionally is hemorrhagic. Nothing puts a stop to the vomiting, which is the predominating and frequently the only symptom of the affection. However, a physical examination of the subject may furnish some diagnostic elements, because the peristaltic contractions of the stomach are not so easily seen under the abdominal wall as in the adult, but when they do exist, they are of the highest diagnostic importance. The same may be said if a rounded pyloric tumor, the size of a finger, can be detected, and is a positive sign allowing one to localize the seat of the digestive disturbance.

There is, however, nothing equal to the persistent vomiting as a pathognomonic sign, and in reality it is the only constant symptom. The same functional signs may lead one to fear an intestinal invagination, but, under these circumstances, palpation of the right iliac fossa will readily reveal a mass. If this is wanting and if no hernia is present, a pyloric stenosis should be at once thought of. According to the German authorities, pyloric stenosis should be dealt with surgically, while certain French specialists, as Variot and Méry, have seen children recover by merely controlling the feedings and the preparation of milk.

However this may be, one should not wait in order to try the ordinary series of gastric carminatives and, if it is soon evident that medical treatment is resulting in no good, surgical interference becomes imperative. The German surgeons say that this should be attempted as early as possible, and, during the operation, the resisting and hard ring at the pylorus can be felt. Various techniques may be employed, such as gastro-enterostomy, or pylorectomy. Schotten prefers gastro-enterostomy in infants and he had six successful outcomes out of fifteen cases.

Naturally these operations are of considerable gravity and the best statistics that have been published (1905), due to Ibrahim, show a mortality of 50%. For this reason one should not undertake surgical interference lightly and before resorting to this extreme measure a careful medical treatment should be instituted, although not persisted in when it becomes evident that no improvement has taken place, or if the child continues to lose ground.

To these progressive and serious stenoses one should oppose the less serious forms which are spasmodic or even organic, with a compensatory hypertrophy of the gastric muscle. This type gives rise to periodical vomiting, the attacks occurring at intervals, diarrhea is continuous and the evolution of the symptoms takes place by stages. This form may be recovered from and needs practically only medical treatment. It is doubtful if, in reality, it really exists; it is more probable that this stenosis simply belongs to certain varieties of infantile dyspepsia.

INCREASE OF DIABETES.

It appears to be established from various statistical data that diabetes is increasing in prevalence, apparently out of proportion to the growth of cities with their attendant methods of living. The *British Medical Journal*, commenting on the matter, asserts that the death-rate from diabetes per 100,000 in 1880 was respectively in London, Paris and New York 4.3, 5 and 5.71, whereas in 1900 it was 7.7, 15.8, and 11.34 respectively. This increase has in general been attributed to the strain of modern competition, but the *British Medical Journal* is of the opinion that other factors must be sought, and sees in the increase of railway travelling a possible cause of the greater prevalence of the disease. Statistics regarding locomotive engineers appear in a measure to bear out this supposition. Figures collected by Mr. Herbert Page gave the causes of death of railway engineers of certain English railways covering a number of years. The result of this investigation, which, however, was based on relatively few cases, showed that engineers suffered from the disease twice as often as the general population. Dr. Navarre of Lyons, publishing his results in *La Semaine Médicale*, has also reached interesting results in his study of the railway employees of certain French roads. It was found that out of 71,000 persons employed the total number of cases of diabetes in ten years was 222, among whom it was shown that the proportion of locomotive engineers and firemen was 12.63 per thousand, 13.10 per thousand for other travelling attendants, whereas it was only 1.76 for all other employees. Studying the statistics from another standpoint, it is found that many more retirements from the service were caused by diabetes among engineers and firemen than among the sedentary employees. The somewhat natural conclusion is reached that the increased prevalence of diabetes among the

engineers and those traveling constantly on railway trains is due to vibration, and it is also suggested that if this be true the possible danger to chauffeurs and those riding constantly in automobiles and vehicles similarly propelled must be considered. Naturally, sufficient time has not yet elapsed to determine this point, not to speak of the inherent difficulties in the way of making adequate examinations of those given to excessive use of the automobile. A further element which should not be lost sight of as a possible causative agent in the production of the disease is the worry and anxiety associated with many callings. This naturally applies to the engineer, and we are inclined to think to the automobilist, but can hardly be considered a factor among the many who ride constantly on railways, but upon whom no special responsibility rests. The question is naturally a difficult one of decision, particularly in view of the imperfect statistics still at our disposal. We agree, nevertheless, with our contemporary in the advisability of considering the excessive railway travel of the last few years as a possible cause of the generally observed fact that diabetes is increasing in frequency.

THE POWER OF BOARDS OF HEALTH.

It is sufficiently evident that, with the growth and complexity of our social relations, the scope of our boards of health is continually widening, and that they are called upon to decide questions which not many years ago we would have regarded as quite beyond their field. This fact implies a continual contact with the law, and necessitates a clear understanding of the exact conditions under which such boards may legally act. It was, therefore, a wise selection that this year the state boards of health chose as the main subject of their meeting the powers of health boards to deal with serious public nuisances, which was discussed by Mr. Thomas M. Babson, corporation counsel of Boston.

Mr. Babson made clear certain points from the standpoint of the law which should be generally understood, particularly in view of the peculiar functions which boards of health are now called upon to perform in relation to public nuisances, of which the much-talked-of moth nuisance may be taken as an example. In the first place, it was pointed out that boards of health cannot make acts not prohibited by law, crimes. The powers which boards of health, as a rule, may exert are exercised under so-called police power. It is clear, for example, that under the law boards of health cannot make it a crime for an individual to have stagnant water or brown-tail moths upon his land, however much of a menace they may be to the community. The offence which may be punishable in such an instance is when such an individual disobeys the orders of the board of health which has declared the nuisance under consideration to be a public menace. In this way an owner may be compelled to abate a nuisance existing on his land which he, himself, neither created nor invited, but only when such compulsion imposes reasonable burden upon him; hitherto, however, the extermination of noxious insects and similar pests has never been held a reasonable burden; hence it appears that the presence of the nests of brown-tail or gypsy moths on land might make that property a nuisance and cause of sickness, in which case boards of health could take action, whereas the presence of the moths themselves would not justify such action. Finally, it was held that a board of health must deal with each owner separately. If it be found that a certain piece of real estate has a nuisance or cause of disease located upon it, an order may be issued for the abatement of the nuisance and a fine may be imposed. In this case the punishment is inflicted for disobedience of the order and not for illegally harboring a nuisance. He is blameworthy not in harboring the nuisance, but in failing to remove it when ordered to do so by the proper authorities.

It is evident that the distinction here made, however well founded it may be on the legal side, permits of considerable confusion on the part of the laity. As we suggested at the outset, it is absolutely necessary that our boards of health should take interest in, and action upon, the matter of public nuisances. It is quite essential that there should be a clear understanding on their part of their legal rights in the matter in order, on the one hand, that the health of the community may be best subserved and, on the other, that the rights of individuals should not be outraged. Mr. Babson's presentation of the case should do much to clarify the situation.

MEDICAL NOTES.

A Centenarian. — The death of Henry Essler, at the reputed age of one hundred and seven, is reported from Retreat, Wis. He is said to have been born in New York State in 1797 and to have taken part in the Fremont expedition making the first overland trip to California.

Money Appropriated for Cuban Sanitation. It is announced that the Cuban Congress has recently appropriated $1,500,000 for the work of sanitation. The House of Representatives passed the Senate Bill April 26.

A Nerve-Food Cure. — Our attention has been called to the merits of a nerve-food cure for cerebrospinal meningitis. It is said "to allay the 'itis' in the cerebrospinal system almost as soon as applied, and to cure by attracting oxygen from the air and feeding it to the nerves."

Times Have Changed. — We are indebted to a daily contemporary for the following incident: "An English instructor at Barnard, in a rather comprehensive talk to the wise young women, referred to the period that extends 'from the cradle to the grave.' Then he stopped abruptly. 'No,' he went on, 'that is an obsolete phrase. There are no more cradles, and soon there will be no more graves. The modern form should be, from the bassinet to the crematory.'"

Health of the Canal Zone. — According to the report, ten days ago, of Colonel Gorgas, who has charge of the sanitation of the Canal Zone, there was steady improvement in the conditions during March. For that month among nine thousand employees one hundred and fifty-three were ill in hospitals with eleven deaths. There was said to be practically no yellow fever at that time on the Isthmus. Since this statement was made an unfortunate death from yellow fever is reported in the person of the architect of the Canal, a young man of much promise only twenty-eight years of age.

Officers of Gastro-Enterological Association. — At the Eighth Annual Meeting of the American Gastro-Enterological Association, held at the Academy of Medicine, New York City, on April 24 and 25, 1905, the following officers were elected for the ensuing year: President, Dr. H. W. Bettmann of Cincinnati; First Vice-President, Dr. S. W. Lambert of New York City, Second Vice-President, Dr. John P. Sawyer of Cleveland; Secretary and Treasurer, Dr. Charles D. Aaron of Detroit; Councillors, Dr. William G. Morgan of Washington, Dr. A. L. Benedict of Buffalo and Dr. J. Kaufmann of New York.

Gift to Dr. Takamine by the Japanese Government. — The Japanese government, on the recommendation of the Emperor, has presented to Dr. Jokichi Takamine, formerly of the Tokio University, but now residing in New York, three handsome buildings, valued at $50,000, which were sent to this country for the World's Fair at St. Louis. The gift, it is announced, is made in recognition not only of Dr. Takamine's services to the Imperial Japanese Commission at the Exposition, but also of important scientific and medical discoveries which have been applied during the present war with great benefit in the medical department of the Japanese army. He will have the buildings set up at his summer home in Sullivan County, near Monticello, which he purposes to convert into a typical Japanese country-place. One of them, which has in its construction the choicest woods of Japan, is of special interest as having been the scene of a luncheon for the Emperor and Empress at the Osaka exposition two years ago, and recently of receptions to President Roosevelt and to Prince Fushima when they were at St. Louis.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 3, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 37, scarlatina 27, typhoid fever 5, measles 16, tuberculosis 36, smallpox 0.

The death-rate of the reported deaths for the week ending May 3, 1905, was 20.03.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 29, 1905, was 210, against 255 the corresponding week of last year, showing a decrease of 45 deaths, and making the death-rate for the week 17.83. Of this number 105 were males and 105 were females; 205 were white and 5 colored; 124 were born in the United States, 82 in foreign countries, and 4 unknown; 41 were of American parentage, 139 of foreign parentage, and 30 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 31 cases and 2 deaths; scarlatina, 31 cases and no deaths; typhoid fever, 10 cases and 1 death; measles, 23 cases and no deaths; tuberculosis, 40 cases and 32 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 28, whooping cough, 1, heart disease 20, bronchitis 6, and marasmus 3. There were 4 deaths from violent causes. The number of children who died under one year was 31; the number under five years, 46. The number of persons who died over sixty years of age was 51. The deaths in public institutions were 70.

During the week there were 6 cases reported of cerebrospinal meningitis and 8 deaths.

DEATHS FROM CEREBROSPINAL MENINGITIS. — According to the weekly bulletin of the State Board of Health of Massachusetts, for the week ending Saturday, April 8, there were twenty-two deaths from cerebrospinal meningitis, of thirty-two cases reported.

MEETING OF THE BOARDS OF HEALTH OF THE STATE OF MASSACHUSETTS. — The quarterly meeting of the boards of health of Massachusetts was held April 26 in Boston. Mr. Thomas M. Babson, corporation counsel of the city, discussed the legal rights of health boards to deal with public nuisances such as that of the brown-tail moth. Dr. W. T. Councilman followed this address with a paper on cerebrospinal meningitis.

DISCOVERY OF A LEPER IN MASSACHUSETTS. — The town of Wareham, Mass., has recently been disturbed by the discovery of what appears to be a case of leprosy. The patient is a Portuguese woman from the Azores, twenty-six years of age and lives in a secluded place with her husband and two children, where she has now been quarantined by order of the State Board of Health. If reports are to be trusted, there is no doubt of the diagnosis, neither is there the least likelihood of the spread of the disease.

BOSTON FLOATING HOSPITAL. — The report of the Boston Floating Hospital for the season of 1904 has recently been published. It announces that in spite of the effort which has been made only three fifths of the needed money for a new boat is available. The cost of this new boat is estimated at from $65,000 to $75,000, and it is considered by the management wiser to wait until this entire amount is available before building. The service will, therefore, be conducted this year, as heretofore, with the former boat, which, as is well known, in spite of its inadequacy has accomplished excellent results.

NEW YORK.

A CENTENARIAN. — Hiram Cronk, the sole survivor of the War of 1812, who lives at Dunn Brook, in Central New York, celebrated his one hundred and fifth birthday on April 29, and a number of delegations from patriotic societies visited him on this occasion.

DIPLOMAS TO RESCUERS. — In behalf of the German Empress Augusta Victoria, diplomas commending their bravery were presented, on April 29, to fifty-one nurses of the hospital for contagious diseases on North Brother Island, who aided in the rescue of women and children from the excursion of the Lutheran Sunday-school on the steamboat *General Slocum*, which was burned in East River in June last. The presentation, which took place on the island, in the building occupied by the nurses, was made by acting Consul-General Gneist, introduced by President Darlington of the Health Department. The diplomas bore the likeness and signature of the Empress, and the head nurse, Miss Edith Smith, received, in addition, a gold brooch, with the German coat-of-arms set with pearls and emeralds.

MORTALITY FROM CEREBROSPINAL MENINGITIS. — The total number of deaths reported in the city from epidemic cerebrospinal meningitis, from Jan. 1 to Saturday, April 22, amounted to 1,033, as against 274 during the same period of 1904, when the disease was also epidemic. During the past week there has been a considerable falling off in the mortality.

Obituaries.

COL. CHARLES SMART, M.D., U. S. A.

COL. CHARLES SMART, who was the ranking Assistant Surgeon General of the United States Army, died in St. Augustine, Fla., April 23, at the age of sixty-four. Colonel Smart was a native of Scotland and had long occupied an enviable position among the officers of the medical department of the army. His appointment as assistant surgeon dated from March 30, 1864, his service having been in the Sixty-third New York Volunteers. He was advanced in rank from time to time until he became colonel and finally assistant surgeon general in February, 1902. His writings on many subjects relating to military sanitation and allied topics are well known. He held membership in the American Medical Association, Association of United States Military Surgeons, American Public Health Association and other organizations of a scientific and social sort. In his death the army loses a most valuable officer and the profession of medicine a respected and useful member.

ANTHONY L. BROWN, M.D.

IN the death of Dr. Anthony L. Brown of Springfield, which occurred April 22, the city loses a member of its board of health, its only negro physician and a leader of his race in that city. He was forty-two years old at the time of his death, which was due to pneumonia. His appointment to the board of health, made in 1901, was the first of his race ever made. He was reappointed in 1903. His early education was obtained in Howard University in Washington, where he was graduated both in the collegiate and medical departments. He practised for a time in Boston and then went to Springfield,

where he had been actively at work since. Dr. Brown was a member of the Massachusetts Medical Society and held various positions of trust and responsibility in Springfield.

WILLIAM B. WARREN, M.D.

Dr. William B. Warren of Groton died suddenly April 29, of apoplexy. Dr. Warren was born in Leominster in 1853, and was graduated from the Dartmouth Medical School, supplementing his work there with study in New York and in Europe. After a short practice in other towns, he settled in Groton where he had been in active practice for the past twenty-two years. His practice had become large and exacting; he rarely took time for rest, and it is generally supposed that the activity of his life was an element in his somewhat early death.

Miscellany.

SMOKELESS POWDERS.

C. F. Kieffer, Fort D. A. Russel, Wyoming,[1] reports an investigation on the pathologic effects of the fumes of the high explosives now so generally in use. A number of different powders were tested regarding the gases given out and the effects on the human system. The latter series was carried out in a room. Dr. Kieffer experimented on himself and on several members of the hospital corps by exploding a carefully measured quantity of the powder in a sealed room containing about twelve hundred feet of air space and observing the effects. The chief symptom was the well-known "dynamite headache," and the fumes seemed to have marked effects on the circulation and heart, with secondary effects on the nervous system. In some cases there was incoördination and diminution of hearing and of vision. Low temperature seemed to aggravate the conditions, and at least one person was found who appeared to be immune. In most cases a certain amount of tolerance is gradually established. Kieffer also mentions a patient seen in Da Costa's clinic who could take 650 drops of *spiritus glonoini* without serious effects. According to his findings the gases to which the effects are attributable are carbonic oxide and nitrogen peroxide, especially the latter, though the symptoms are due to the combination of both. To meet the nitrite poisoning endeavor should be made to restore the vasomotor tonus, and strychnia is indicated in full doses. The carbonic oxide will be eliminated rapidly in moderate cases, but in severe intoxications oxygen inhalations and artificial respiration may be required. For the headache, coal-tar anodynes are not only useless, but dangerous. The best remedies are strong coffee and a linseed poultice to the nape, as advised by Key. The danger from these fumes is a real one, as numerous fatal cases testify.

[1] Journal A. M. A., April 29.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 22, 1905.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Menin-gitis.
New York	3,908,644	1,856	501	28.79	18.50	2.70	.45	6.68
Chicago	1,990,780	558	175	25.44	12.90	1.42	1.07	—
Philadelphia	1,407,988	455	94	22.61	16.07	1.00	.50	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	199	50	22.61	16.07	1.00	.50	—
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	64	22	14.06	17.18	1.56	—	3.12
Boston	617,920	214	48	19.16	21.03	1.87	—	3.27
Worcester	136,925	36	10	16.67	11.11	—	—	11.11
Fall River	119,349	35	17	20.00	22.85	—	—	5.71
Lowell	104,402	39	11	33.33	17.95	2.56	—	7.69
Cambridge	100,926	28	3	28.57	14.29	—	3.57	—
Lynn	78,575	28	5	28.57	7.14	3.57	—	7.14
Lawrence	73,348	24	11	33.33	16.67	—	—	12.50
Springfield	73,090	16	4	—	12.50	—	—	—
Somerville	70,413	20	2	35.00	10.00	—	5 00	—
New Bedford	68,883	17	8	35.29	17.64	—	—	—
Holyoke	56,538	19	9	31.57	5.26	—	—	10.52
Brockton	46,601	9	1	11.11	—	—	—	—
Newton	39,310	9	—	11.11	—	—	—	—
Haverhill	39,061	16	1	37.50	12.50	6.25	6.25	6.25
Malden	37,995	13	4	7.70	7.70	7.70	—	—
Salem	37,186	13	3	15.40	—	—	—	7.70
Chelsea	36,499	13	0	23.10	15.40	—	—	7.70
Fitchburg	36,235	6	—	16.67	—	—	—	—
Taunton	34,577	6	2	33.33	—	—	—	—
Everett	30,909	8	1	12.50	—	12.50	—	—
North Adams	29,201	7	2	14.30	—	—	—	—
Quincy	26,798	6	2	16.67	33.33	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	4	—	—	—	—	—	—
Brookline	25,576	8	—	—	12.50	—	—	—
Pittsfield	23,870	13	4	25.00	25.00	—	—	12.50
Medford	21,952	10	4	—	20.00	—	—	—
Chicopee	21,692	3	2	—	—	—	—	—
Northampton	20,514	5	1	—	—	—	—	—
Beverly	15,807	6	1	33.33	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	5	0	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	5	1	—	—	—	—	—
Newburyport	14,478	4	1	25.00	—	—	25.00	—
Woburn	14,315	4	—	—	25.00	—	—	—
Melrose	13,819	2	0	—	50.00	—	—	—
Westfield	13,800	—	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	5	1	—	—	—	—	—
Revere	13,609	1	—	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,466	3	3	66.67	—	33.33	—	33.33
Gardner	12,234	—	—	—	—	—	—	—
Southbridge	11,716	8	2	37.50	12.50	—	—	—
Watertown	11,575	4	1	25.00	—	—	—	—
Weymouth	11,350	2	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,509; under five years of age, 1,007; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 893; acute lung diseases 551, consumption 439, scarlet fever 20, whooping cough 28, cerebrospinal meningitis 138, smallpox 2, erysipelas 11, puerperal fever 19, measles 33, typhoid fever 37, diarrheal diseases 94, diphtheria and croup 66.

From whooping cough, New York 18, Chicago 8, Boston 1, Cambridge 1. From scarlet fever, New York 12, Chicago 3, Baltimore, Providence, Boston, Cambridge and Lawrence 1 each. From cerebrospinal meningitis, New York 104, Philadelphia 4, Providence 2, Boston 7, Worcester 4, Lowell 3, Lawrence 3, Fall River 2, Lynn 2, Holyoke 2, Haverhill, Salem, Chelsea, Pittsfield and Peabody, 1 each. From erysipelas, New York 6, Chicago 2, Baltimore 1, Boston 1, New Bedford 1. From smallpox, Chicago 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending April 15, 1905, the death-rate was 16.6. Deaths reported 4,958; acute diseases of the respiratory organs (London) 147, whooping cough 148, diphtheria 58, measles 231, smallpox 2, scarlet fever 52.

The death-rate ranged from 9.0 in Kings Norton to 31.1 in Merthyr Tydfil; London 16.1, West Ham 13.4, Brighton 13.1, Southampton 16.3, Plymouth 16.2, Bristol 16.3, Birmingham 19.5,

Leicester 11.4, Nottingham 19.9, Birkenhead 16.2, Liverpool 18.7, Wigan 16.3, Bolton 16.1, Manchester 21.3, Salford 16.7, Halifax 15.4, Bradford 17.8, Leeds 14.8, Hull 15.2, Sheffield 19.7, Newcastle-on-Tyne 17.8, Cardiff 19.1, Rhondda 26.7, Hornsey 9.9.

METEOROLOGICAL RECORD.

For the week ending April 22, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 16	29.54	40	47	34	68	51	60	N W	W	8	13	O.	C.	0
M. 17	29.66	38	44	33	54	43	48	W	W	24	30	C.	C.	T.
T.. 18	29.96	42	50	33	53	54	54	W	N W	24	9	C.	C.	0
W . 19	30.12	44	55	32	56	47	52	W	S W	13	16	C.	C.	0
T.. 20	29.94	56	70	43	67	88	78	S W	S W	12	10	C.	R.	.01
F.. 21	29.73	58	72	44	85	100	92	S	E	10	10	O.	R.	.51
S.. 22	30.13	43	47	39	84	78	81	N	W	8	7	R.	C.	.03
☞	29.87		55	37			66							.55

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING APRIL 29, 1905.

J. F. URIE, surgeon. Ordered to the "Pennsylvania," April 25.

W. L. BELL, passed assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal., for treatment.

J. D. MANCHESTER, assistant surgeon. Detached from the "Petrel" when put out of commission, and ordered to the "Princeton."

W. R. CARTON, passed assistant surgeon. Ordered to Washington, D. C., and to report to the Surgeon General April 29, for a course of instruction at the Naval Museum of Hygiene and Medical School.

F. M. PURLON, passed assistant surgeon. Detached from the Bureau of Medicine and Surgery, navy department, April 29, and ordered to report to the Surgeon General for course of instruction at the Naval Museum of Hygiene and Medical School.

P. T. DESSEN, assistant surgeon. When discharged from treatment at the Naval Hospital, Norfolk, Va., granted sick leave for two months.

C. F. REYNOLDS, pharmacist. Detached from the "Hancock" April 29, and ordered to the Navy Yard, Mare Island, Cal., for duty in the Medicine and Surgery storehouse of that yard.

SOCIETY NOTICES.

THE AMERICAN ROENTGEN RAY SOCIETY. — The sixth annual meeting of the American Roentgen Ray Society will be held at Johns Hopkins University, Baltimore, Sept. 28, 29 and 30. The papers of the meeting for the first day will deal with x-ray diagnosis and those of the second and third days will be therapeutic. There will also be an evening exhibit of lantern slides which promises to be extremely interesting. The Belvedere Hotel has been selected as headquarters.

RUSSELL H. BOGGS, *Secretary.*

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — There will be a meeting of the Boston Society for Medical Improvement in John Ware Hall, Medical Library, on Monday, May 15, at 8.15 P.M. Dr. J. Collins Warren will speak on Epochs in the History of Medicine illustrated by the stereopticon. All members of the profession are invited to be present.

A. K. STONE, M.D., *Secretary*

RECENT DEATHS.

DR. WILLIAM EDWARDS, superintendent of the Michigan Asylum for the Insane at Kalamazoo, died last week at Ann Arbor. He had for many years been prominently identified with the study and treatment of the insane.

WILLIAM BARNARD WARREN, M.D., M.M.S.S., died in Groton, April 29, 1905, aged fifty-one years.

JOHN H. HINTON, M.D., a prominent physician and surgeon of New York, died on April 26, after an illness of two months. He was born in New York in 1827, and was graduated from the College of Physicians and Surgeons in 1852; after which he spent two years in study in Germany. He was visiting surgeon to the Presbyterian Hospital and the New York Eye and Ear Infirmary, and for many years was associated with the eminent surgeon, Dr. Alfred C. Post. The absolute trust with which Dr. Hinton was regarded made him a typical financial officer, and during his entire career he gave his efficient services in the most unselfish manner. Among the medical societies of which he was treasurer were the New York Pathological Society, the New York County Medical Association, and the Society for the Aid of Widows and Orphans of Medical Men. For the past fifteen years he had retired from active practice, but he always retained a warm interest in the medical and other societies with which he was connected. He was one of the founders of the New York State and County Medical Associations and of the Medical Association of the Greater City of New York. He was also devoted to art and literature. He was a well-known book collector, and had one of the best private libraries in New York. His funeral services were held on April 28, at the Church of the Transfiguration ("the little church around the corner"), of which he was for a considerable time a vestryman.

HIRAM BARBER, M.D., died at his home at Ossining on the Hudson on April 24, at the age of eighty-five years. His father served in the War of 1812 and his grandfather in the Revolutionary War. Dr. Barber had been a member of the New York Legislature, surgeon to the New York City Park Department, and physician to Sing Sing prison.

APPOINTMENTS.

DR. L. PIERCE CLARK of New York has been appointed consulting neurologist at the Craig Colony for Epileptics.

MR. A. SHUMAN has again been re-appointed as a trustee of the Boston City Hospital.

DR. S. H. DURGIN has been appointed a member of the Boston Board of Health.

BOOKS AND PAMPHLETS RECEIVED.

The Early Diagnosis of Pulmonary Tuberculosis. Circular issued by the Illinois State Board of Health. 1905.

Fifteenth Annual Report of St. Mary's Hospital, Rochester, Minn., for the Year 1904.

Treatment of Intracapsular Fractures of the Femur. By a New Method. By T. J. Maxwell, M.D. Reprint.

Remarks on Appendicitis. By Parker Syms, M.D. Reprint.

Diagnosis of Cholecystitis and Cholelithiasis. By Parker Syms, M.D. Reprint.

Prostatic Obstruction to Urination. When to Operate and How to Operate. By Parker Syms, M.D. Reprint.

Lehrbuch der Kinderkrankheiten für Ärzte und Studirende von Dr. Adolph Baginsky. Leipzig: Verlag von S. Hirzel. 1905.

Transactions of the American Dermatological Association at its Twenty-eighth Annual Meeting held at Niagara Falls, N. Y., June 2 and 3, 1904.

Ninety-first Annual Report of the Trustees of the Massachusetts General Hospital. Including the General Hospital in Boston, The McLean Hospital and the Convalescent Home in Waverley. 1904.

Gynecology, Medical and Surgical. Outlines for Students and Practitioners. By Henry J. Garrigues, A.M., M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1905.

Studies in the Psychology of Sex. Sexual Selection in Man. By Havelock Ellis. Philadelphia: F. A. Davis Company. 1905.

Albuminuric Retinitis. By L. Webster Fox, A.M., M.D. Reprint.

Saccharine Saline Injections in Ophthalmic Practice. (Sodium-Benzoyl-Sulphonic.) By L. Webster Fox, A. M., M.D. Reprint.

Contraction of the Visual Field; a Symptom of Anesthesia of the Retina in Children. By L. Webster Fox, A.M., M.D. Reprint.

The Third Report of the Caroline Brewer Croft Cancer Commission of the Harvard Medical School. Boston. 1905.

Fifth Annual Report of the Work of the Cancer Laboratory of the New York State Department of Health. Conducted at the Gratwick Research Laboratory, University of Buffalo. For the Year 1903-4. Albany. 1904.

Original Articles.

INFECTIONS OF THE RESPIRATORY TRACT WITH INFLUENZA BACILLI AND OTHER ORGANISMS, THEIR CLINICAL AND PATHOLOGICAL SIMILARITY, AND CONFUSION WITH TUBERCULOSIS.*

BY FREDERICK T. LORD, M.D., BOSTON,
Physician to Out-Patients, Massachusetts General Hospital; Assistant in Clinical Medicine, Harvard Medical School.

I. SUBSEQUENT HISTORIES OF THE CASES OF INFLUENZA REPORTED IN 1902.

Two and one half years have now elapsed since a report[1] was published on 29 cases of infection with influenza bacilli. I have been able to follow 19 of these cases (8 acute and 11 chronic cases).

Of the 8 acute cases, 4 recovered without subsequent symptoms, 3 have had relapses, but no steady cough. One case, of bronchopneumonia in 1902, has continued to cough with signs of a localized process at the right base behind.

Of the 11 chronic cases, one recovered, two died, one of cerebral hemorrhage, the second of "chronic bronchitis and emphysema" and 8 continue to cough with persistence of influenza bacilli in their sputum.

In five acute and in two chronic cases, tuberculosis might have been suspected clinically from the localization of the pulmonary signs, at the right base in two (Acute cases 1 and 8), at the left base in one (Chronic case 3), throughout the left lung in one (Acute case 3) and at one or both apices in 3 (Acute cases 2 and 4; and Chronic case 2). In their clinical course, observed now for from two to two and one-half years, they are unlike tuberculosis and no tubercle bacilli have been found in their sputum

The cases are described in more detail below:

A. Acute Cases. — Of the 11 acute cases of infection with influenza bacilli, one (Case 6, Acute cases) could not be followed. Two (Cases 9 and 11) died. Their death was reported in 1902.

The remaining 8 cases have been followed.

Onset: The duration of the cough before they came under observation was from one to three weeks. In all the symptoms were of acute catarrh of the respiratory tract, with fever, chilliness or actual chills, headache, general pains, anorexia, nausea or vomiting and a varying degree of prostration.

Course: The further progress of the cases may be conveniently sketched under three groups:

(*a*) Complete recovery: Four patients (Cases 2, 4, 5, and 8, Acute cases) have remained well since the acute attack. In one patient (Case 5, Acute cases) physical examination during the acute attack in 1902 was negative. The three remaining patients had signs of localized bronchitis. In one (Case 2, Acute cases) there were râles at both apices; in a second (Case 4, Acute cases), at both apices and in the left back; in a third (Case 8, Acute cases), at the right base.

No tubercle bacilli were found in their sputum.

Examination of the lungs of these four patients in the fall of 1903 was negative. One patient (Case 5, Acute cases) was lost track of after 1903. Letters received in March, 1905, from the remaining three patients state that they have had no symptoms and consider themselves well.

It is of interest that two of these patients (Cases 2 and 8, Acute cases) were treated in the fall of 1902 at institutions for the cure of tuberculosis.

(*b*) Relapse or reinfection: Three patients (Cases 3, 7 and 10, Acute cases) have had recurrences of catarrhal symptoms since the attack in 1902. (1) One patient (Case 3, Acute cases) had signs of bronchitis limited to the left lung in 1902. His cough lasted for two weeks after the last note in 1902. He states that he has had frequent colds, but no steady cough since the attack. Examination of his lungs in March, 1905, was negative. (2) In a second patient, (Case 7, Acute cases) there were signs of diffuse bronchitis in 1902. Catarrhal symptoms recurred in the fall of 1903 and lasted for six months. Examination of the lungs at this time also showed diffuse bronchitis. The sputum, examined Nov. 22, 1903, showed no tubercle bacilli. Cultures demonstrated 100 colonies of influenza bacilli, 16 colonies of micrococcus catarrhalis and 6 colonies of staphylococcus albus. Again in the fall of 1904, he had a third attack of acute respiratory infection from which he recovered in two months. He has since been well. The last report was received in March, 1905. (3) The remaining patient (Case 10, Acute cases) also had diffuse bronchitis in 1902. He had a slight cough again in the summer and fall of 1903. Examination of his lungs was negative. The sputum showed no tubercle bacilli. On cultivation, Nov. 22, 1903, 100 colonies of influenza bacilli, 80 colonies of micrococcus catarrhalis and 3 colonies of staphylococcus aureus were found. A letter received in March, 1905, states that he has since been well.

(*c*) Development of chronic cough from the acute attack: The remaining patient is of especial interest since he illustrates the persistence of symptoms from an acute attack.

F. P., thirty-nine, a medium-sized, muscular man, entered the service of Dr. R. H. Fitz, at the Massachusetts General Hospital on Aug. 19, 1902. Ten days before entrance he began to cough, was chilly and felt indisposed to work. After keeping about for four days, he went to bed because of more severe cough, dyspnea and general discomfort. His sputum during this time was profuse, greenish and at times bloody after a severe coughing spell.

Examination of the lungs showed medium and coarse moist râles throughout, but most numerous at the right base behind.

The temperature, which was 102° at entrance, ran an irregular course, with evening remissions and morning rises, and remained normal only after twenty-six days. Influenza bacilli were present in enormous numbers in the sputum, and repeated examination failed to reveal tubercle bacilli.

The patient has continued to cough, and examination

*From the Clinico-pathological Laboratory of the Massachusetts General Hospital, J. H. Wright, Director.

[1] Lord, F. T.: Eleven Acute and Eighteen Chronic Cases of Influenza. BOSTON MEDICAL AND SURGICAL JOURNAL, Dec. 18, 1902.

has shown râles persistently localized at the right base, below the angle of the scapula and to the vertebral side of the post-axillary line.

Examination of the patient and his sputum was made on Nov. 10, 1903, Feb. 25, March 30, Oct. 24, 1904, and Feb. 28, 1905. Tubercle bacilli have never been found. Influenza bacilli have been inconstantly present and mixed with other organisms. They were demonstrated by culture in the specimens of Nov. 10, 1903, Feb. 25, 1904, and Feb. 28, 1905, but were not found in the remaining examinations.

In the two and one-half years since the acute attack, the patient has gained 47 lbs. in weight. He feels perfectly well, with the exception of the cough.

The persistence of râles at the right base in this patient suggests that this was the site of an undetected bronchopneumonia. It seems probable that small abscesses resulted from the cellular infiltration of the lung, with later the development of induration and perhaps also bronchi-ectasis.

B. Chronic Cases. — Of the 18 cases of chronic infection with influenza bacilli reported in 1902, 11 have been followed.

(*a*) Death, two cases. (1) Autopsy 1,037. (Case 17, Chronic cases.)

E. D., a poorly nourished woman of sixty-two entered the Channing Home Oct. 16, 1901, with a history of cough for forty-four years. She was under observation until her death from cerebral hemorrhage, March 16, 1903. Clinically the case presented signs of diffuse bronchitis and emphysema, with probable bronchi-ectasis.

Influenza bacilli were present in large numbers in her sputum at each of some 30 to 40 examinations. No tubercle bacilli could be found.

Autopsy (by Dr. Oscar Richardson). The lungs showed diffuse bronchi-ectasis, in places leading into small abscess cavities. The largest of these abscess cavities was about 2½ cm. in greatest diameter. In several places in each lung were areas of chronic interstitial pneumonia, the largest measuring 3 cm. in diameter. Throughout these dense areas were small foci of purulent softening. In the tissues of the apical portion of one lung there was a small fibro-calcareous mass about 2 cm. in greatest diameter and in the lower lobe of the same lung a small similar nodule about 3 cm. in greatest dimension. Microscopical examination showed no evidence of caseation. No tuberculosis was found with the exception of the obsolete nodules above mentioned.

The case is of interest not merely from the persistence of influenza bacilli with other organisms in the sputum for a period of seventeen months, but also shows that long continued cough may be due to infection with other organisms than the tubercle bacillus.

(2) The second patient (Case 19, Chronic cases) had had a cough with asthmatic paroxysms for nineteen months before entrance, Oct. 30, 1902. Influenza bacilli persisted in his sputum for one month. At this time he showed diffuse bronchitis. Curschman spirals and mononuclear eosinophiles were found in his sputum, the purulent character of which gave place to a mucoid, glassy, tenacious expectoration. The asthmatic paroxysms recurred at intervals. When seen on Dec. 2, 1903, no influenza bacilli could be found. He died in January, 1905, of "chronic bronchitis and emphysema."[3] No autopsy was obtained.

(*b*) Recovery: One case. One of the chronic cases (Case 6, Chronic cases), a boy of thirteen, who had had a cough for five or six years before entrance in September, 1902, continued to cough until the spring of 1903. Influenza bacilli were found in his sputum for two months during the fall of 1902. At this time examination of his chest showed diffuse bronchitis. He was last seen in the fall of 1903, having had a recurrence of catarrhal symptoms for two months. Examination of his chest was negative. No influenza bacilli could be found in his sputum.

(*c*) Continuance of symptoms and influenza bacilli: The remaining eight patients (Cases 2, 3, 4, 7, 10, 11, 12 and 16, Chronic cases) have continued to cough since they were first seen in 1902.

Onset: Their history states that they had coughed for from eight months to fifteen years before they came under observation. In two cases (Cases 2 and 3, Chronic cases) they definitely date their disease from an attack of "grippe"; in the remaining cases the onset seems to have been insidious and without relation to an acute attack.

Physical examination: Diffuse bronchitis has been constantly present in six cases. In one (Case 2, Chronic cases), examination has usually been negative, but at times a few râles have been heard at both apices, back and front. They all show moderate or extreme emphysema. The suspicion is strong that they have diffuse bronchi-ectasis and in places indurative pneumonia with abscess formation.

Sputum: Their sputum has remained constantly the same, — abundant, purulent, and containing great numbers of influenza bacilli, mixed with other organisms. Though thus constantly mixed the influenza bacilli have always predominated. No tubercle bacilli have been found.

Course: These eight cases show no material change since they first came under observation. Their cough improves somewhat each summer to return with equal intensity in the winter. They are still at the same occupation in which they were engaged when first seen.

Period of observation: Two patients (Cases 4 and 7, Chronic cases) were followed for one year. One patient (Case 2, Chronic cases) was followed for two years. Five patients (Cases 3, 10, 11, 12, and 16, Chronic cases) were followed for two and one-half years and are still under observation.

One of these cases (Case 3, Chronic cases) deserves special mention from the occurrence of frequent attacks of hemoptysis.

E. H., a bright, well developed girl of eleven, first came under observation Aug. 23, 1902. She has a history of cough since two years of age. During the nine years which have elapsed since then she has daily expectorated large amounts of greenish, slightly tenacious sputum, with a foul odor. She is short of breath

[3] Death certificate, State House.

only after exertion. There is no complaint of chill, fever or night sweats.

She has been a faithful attendant at the Out-Patient Clinic. Repeated examination of her chest has shown moderate emphysema and occasional diffuse bronchitis. There is slight relative dullness at the left base over an area about the size of the hand, below the angle of the left scapula. In this region, the respiration is bronchovesicular, the vocal and tactile fremitus diminished. Crepitant râles have been constantly present, limited in extent to this location. An x-ray affords no evidence of changes at this place.

The patient spent the summer of 1903 at the State Hospital at Tewksbury, from which Dr. A. K. Drake wrote that while there her temperature was "practically normal all of the time" and her sputum "constantly negative for tubercle bacilli." Under their out-door treatment, she gained 12 lbs. and her cough was much improved.

Examination of her sputum Aug. 23, Sept. 3, Sept. 21, Oct. 22, Nov. 17, and Dec. 19, 1902, and Jan. 15, Nov. 15, Dec. 5 and 6, 1903, and Nov. 5, Nov. 19 and Dec. 20, 1904, showed influenza bacilli in great numbers, both in fresh specimens and in culture, mixed with other organisms. No tubercle bacilli or actinomyces were found.

On her return from Tewksbury in 1903, she had two small hemorrhages, with the loss of about a teaspoonful of blood. At intervals of several months these small hemorrhages have recurred.

She was admitted to the hospital in the service of Dr. F. C. Shattuck on Dec. 5, 1903, for an injection of tuberculin. After two days in the hospital, during which her temperature was found normal on a four-hourly chart, she was given 4 mgm. of tuberculin, without a reaction in forty-eight hours on a two hour chart. This was followed by the injection of 7 mgm. with a like negative result.

It is thought that the favorable clinical course in these cases makes it highly improbable that they ever suffered from pulmonary tuberculosis. The absence of tubercle bacilli still further confirms this supposition. In the presence in their sputum of organisms which can, I think, with a fair degree of certainty be shown by autopsy to be capable of setting up permanent pulmonary changes, their clinical course can be adequately explained.

II. PREVALENCE OF INFLUENZA BACILLI APART FROM EPIDEMICS.

Between August, 1902, and January, 1904, 186 sputa were examined from cases coming to the Out-Patient Department of the Massachusetts General Hospital. The cases were unselected, except to exclude from the investigation those patients in whom tubercle bacilli were found. Clinically they were suffering from acute or chronic disease of the respiratory tract, for the most part bronchitis.

In 110 (59%) of the 186 cases organisms having the morphology and staining reaction of influenza bacilli were seen in varying numbers. In 56 cases (30% of all those investigated) the organisms were shown by culture to conform in all respects to the bacilli described by Pfeiffer in 1892 [1] and regarded by him as the cause of epidemic influenza. In 47 cases (25% of all investigated) the influenza bacilli were in overwhelming numbers. In these cases, however, varying numbers of micrococcus catarrhalis, pneumococci, pyogenic cocci, pseudo-pneumococci, bacillus mucosus capsulatus, etc., were usually found with the influenza bacilli on the blood agar tubes. Very rarely, the sputum first washed in sterile bouillon or salt solution showed on cultivation no other organisms than influenza bacilli. As the technique improved, influenza bacilli were found in a somewhat larger proportion of cases, so that their presence in only 30% of the cases probably places the number too low.

The cases showing influenza bacilli in the sputum were quite evenly distributed over the eighteen months during which the investigation was pursued. We had no epidemic of acute disease of the respiratory tract during this time, and the 186 cases represent merely a part of the normal number of cases with respiratory symptoms constantly seeking admission.

III. RESPIRATORY INFECTION WITH OTHER ORGANISMS.

A record was kept of the different organisms and their relative proportion in the 186 specimens examined.

Mixed infections: In 120 cases (64%) of the 186 investigated the presence of two or more organisms was noted in the specimens. Among the more important organisms identified in these mixed infections were influenza bacilli, micrococcus catarrhalis, the pyogenic cocci, pneumococci, bacillus mucosus capsulatus and the pseudo-pneumococcus.

No attempt was made to follow the mixed infections to their termination.

Pure infections: In 66 (36%) of the 186 cases investigated one organism so far predominated that it could fairly be classed as representing an infection with one group.

Of these 66 cases of comparatively pure infection, the presence of influenza bacilli in 47 comprised the largest number. Organisms resembling pneumococci were found in 70% of the cases, but were represented as a pure infection in only eight.

The micrococcus catarrhalis was found as a practically pure infection in 5 cases.

The bacillus mucosus capsulatus and the pseudo-pneumococcus were each represented as a pure infection in three cases.

In general the organisms did not remain unmixed in the sputum for long periods. While at the first examination one group was almost solely represented, it was noted that the later examination of the sputum from the same case frequently showed that contamination had taken place. Sharp distinctions in the pathogenic power of different organisms in the sputum cannot be drawn and the symptoms in any given case must be regarded as due to infection with the different organisms found, without emphasis on any one infecting group.

[1] Pfeiffer: Die Aetiologie de Influenza, Zeit. f. Hygiene, 13, 1893.

IV. CLINICAL SIMILARITY OF INFECTION WITH INFLUENZA BACILLI AND WITH OTHER ORGANISMS.

It was hoped that by dividing the respiratory infections into groups, according to the predominance or exclusive presence of one variety of organisms, that some clinical difference in the course and termination of the different cases might be obtained.

The pneumococcus infections may be selected for comparison with the infections with influenza bacilli.

These eight cases of infection with pneumococci gave a history of cough for from one to five weeks before entrance.

In their onset they presented no difference from the cases of acute infection with influenza bacilli, beginning with catarrhal symptoms, with or without fever and prostration. The general symptoms were as severe as in the infections with influenza bacilli.

Examination was negative in three cases. Of the remaining five there were signs of diffuse bronchitis in one, and localized bronchitis in four: In one at the right apex, in a second at the left apex and throughout the left back, in the third at the right apex and the right axilla and in the fourth at the right axilla.

I was able to follow five of the cases to their termination. In three the physical examination was negative. In one the bronchitis was diffuse and in the last case, the râles were confined to the left back and the left apex. No tubercle bacilli could be found in their sputum.

They were well and without cough in from six to twelve weeks (four within eight weeks).

I was unable to follow the five cases of micrococcus catarrhalis infection to their termination. Of 132 cases investigated by Ghon, Pfeiffer and Sederl [4] this organism was identified in 81 (59%). In only one case was it found alone. In five other cases, though associated with other bacteria, it was in such numbers that it was regarded as the cause of the process.

In the one case in which the organism was in pure culture it was isolated from the bronchial pus after death from diffuse bronchitis. In the remaining five cases, the acute onset of the disease dated from a few weeks to one day before entrance. The respiratory symptoms began with the usual disturbances accompanying an acute infection.

Examination showed diffuse or local bronchitis and bronchopneumonia. In two cases the resolution of the pulmonary solidification took place slowly, not being complete in one until more than a month had elapsed.

The sputum showed enormous numbers of micrococcus catarrhalis with a few pneumococci and pyogenic cocci; influenza bacilli were present in two cases. No tubercle bacilli were found.

In one case the cough lasted for over four months, the remaining patients were discharged, well, within six weeks.

[4] Ghon, Pfeiffer and Sederl: Der Mikrococcus Catarrhalis (R. Pfeiffer) als Krankheitserreger. Zeit. f. klin. med. 44, 1902, p. 277.

Concerning the clinical picture, Sederl concludes that it has nothing characteristic. "It is most like infection with influenza bacilli and pneumococci and might, not infrequently, be confused with them, especially the former, since only an exact bacteriological investigation will permit of their differentiation."

(To be continued.)

PERFORATED DUODENAL AND GASTRIC ULCERS: A REPORT OF TWO CASES: OPERATION: RECOVERY.

BY CHARLES L. SCUDDER, M.D., BOSTON,
Visiting Surgeon to the Massachusetts General Hospital.

CASE I. *Mr. J. McE. Dyspepsia for years. Sudden severe epigastric pain. Operation, closure of a perforated gastric ulcer. Recovery. Subsequent posterior gastro-enterostomy. Recovery.*

A patient of Dr. C. C. Day and Dr. Healey of Newburyport. Thirty-four years old. Single. For some years the patient had had attacks of indigestion and dyspepsia, and two years ago he was in bed with an attack of what was called gastritis. To-day, July 1, 1904, while at work in an iron foundry, he was suddenly, at five o'clock in the afternoon, seized with abdominal pain, referred to the pit of the stomach. He was seen by Dr. Day within one-half hour of this attack of pain, and taken immediately to the hospital. The man had a temperature of 97°, pulse 64, and respiration 32. His facies was not particularly peritonitic. His tongue was moist, his abdomen was hard and board-like, the muscles were rigidly contracted. He was most tender over the seat of the initial pain in the epigastrium, and all the pain was referred to the epigastrium, although he spoke of being sore in the lower half of the abdomen. He had not vomited.

Operation: Abdominal section through the right rectus abdominis muscle. A yellowish, thin, pea-soup material was present in the abdomen, limited largely to the right side. The pylorus presented, with a perforation upon the gastric side on the anterior surface, the size of the lead of a lead pencil. There was no gas in the abdominal cavity. Gas came from the perforation as it was manipulated. The perforation had a punched-out look. There was no fat necrosis visible. The gall bladder was normal in appearance. There was an indurated margin about the perforation half an inch in width. The perforation was closed with three Pagenstecker mattress sutures. A bit of omentum was folded over the line of suture. (See Fig. 1.) A suprapubic incision was made. The abdomen was washed thoroughly with saline solution. Two tubes and a wick were placed in the pelvis through the suprapubic opening and a wick through the laparotomy opening to the line of suture in the stomach. Through-and-through silkworm-gut sutures partially closed both incisions. The patient was in good condition at the end of the operation. He made an uninterrupted and satisfactory recovery. All wicks were removed on about the fifth day.

November, 1904: Operation posterior gastro-enterostomy without a loop. Complete recovery.

May, 1905. The patient at times complains of a burning sensation in the epigastrium which disappears after taking sodium bicarbonate in small doses.

CASE II. *Mr. F. P. D. Indigestion for three years. Sudden epigastric pain. Operation, suture of a perforated duodenal ulcer. After five weeks second operation, posterior gastrojejunostomy. Complete relief of symptoms.*

Twenty-four years old. Massachusetts General Hospital, No. 137,582. This man had had indigestion for three years. Two days ago he was seized suddenly with acute abdominal pain in the epigastrium. Later this pain became general. The pain was at no time localized in the region of the appendix, although he was somewhat sensitive at that spot, more sensitive there than anywhere else in the abdomen. The bowels were constipated. The abdomen was slightly distended and the abdominal muscles were rigid. There was distinct spasm of both recti. There was no mass to be felt and no dullness upon percussion. The temperature was 100.2°, the pulse 80, the white blood count 23,000.

peritoneal cavity in each instance was quickly cleansed by salt flushing and wiping. Cigarette and tube drains were used for a few days only in each case. Both patients recovered. In each case at a subsequent time a posterior gastro-jejunostomy was done. The anastomosis was made close to the ligament of Treitz. Both cases recovered from the second operation and are well to-day.

In the case of gastric ulcer the diagnosis was based upon these facts: The man was a young adult with a history of indigestion and dyspepsia for several years. He had had one previous at-

Fig. 1. Case I. Perforating gastric ulcer. Ulcer situated anteriorly at the middle of suture line. Note two mattress sutures placed and tied, introduction of third suture. Note a bit of omentum caught up by one suture. This omental graft was, after tying the third suture, turned over the suture line and held by two stitches.

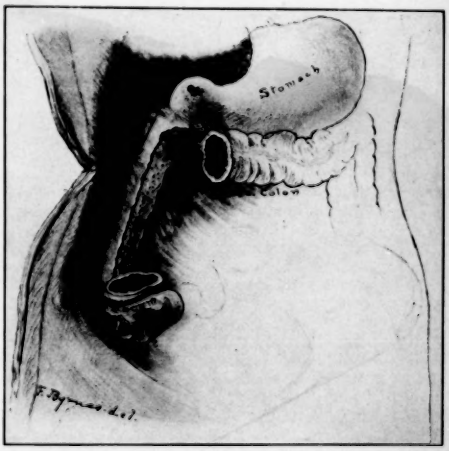

Fig. 2. Case II. Perforating duodenal ulcer. General peritonitis. Operation. Recovery. Gastrojejunostomy subsequently. Recovery. Note seat of perforation indicated by black spot in duodenum. Note that the attachment of the ascending mesocolon facilitates the descent of extravasated duodenal contents toward the appendix as indicated by the arrow.

gastro-intestinal canal. One case was an ulcer of stomach. The other case was an ulcer of the duodenum. Both ulcers perforated, causing acute peritonitis. The first patient was operated upon four hours after the initial sign of perforation. The diagnosis of a perforated gastric ulcer was confirmed. The second patient was operated upon forty-eight hours after perforation. It was thought previous to operation that the patient had an appendicitis and a general peritonitis.

Both the ulcers were closed by sutures. The

gastric ulcer in the absence of a clear history.

Before perforation has occurred it is possible to diagnose a duodenal ulcer from a gastric ulcer. Up to within a short time this has not been true, but recently Moynihan [1] of Leeds and Graham [2] of Rochester have reported relatively large groups of duodenal ulcers. These groups afford valuable data. It is evident that an ulcer of the duodenum is not very uncommon and that it may be

[1] Transactions of the Clinical Society of London, 1902. Lancet, London, March, 1904.

[2] Paper read before the Minnesota State Medical Association, June 2, 1904; and the Minnesota Valley Medical Society Dec. 2, 1902.

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May, 1905. The patient at times complains of a burning sensation in the epigastrium which disappears after taking sodium bicarbonate in small doses.

CASE II. *Mr. F. P. D. Indigestion for three years. Sudden epigastric pain. Operation, suture of a perforated duodenal ulcer. After five weeks second operation, posterior gastrojejunostomy. Complete relief of symptoms.*

Twenty-four years old. Massachusetts General Hospital, No. 137,582. This man had had indigestion for three years. Two days ago he was seized suddenly with acute abdominal pain in the epigastrium. Later this pain became general. The pain was at no time localized in the region of the appendix, although he was somewhat sensitive at that spot, more sensitive there than anywhere else in the abdomen. The bowels were constipated. The abdomen was slightly distended and the abdominal muscles were rigid. There was distinct spasm of both recti. There was no mass to be felt and no dullness upon percussion. The temperature was 100.2°, the pulse 80, the white blood count 23,000.

Thinking that this was probably a case of appendicitis with beginning general peritonitis, an incision was made over the appendix. Free gastric contents were found. The appendix was normal. There were spots of necrosis in the omentum up toward the stomach. The bowel was injected only slightly, but considerably distended. Upon following the lead suggested by the necrosis of the omentum and the fibrin, which increased in amount upward toward the stomach, a second incision was made in the median line in the epigastrium and a perforating ulcer in the first part of the duodenum discovered. Gas escaped from the perforation, which was surrounded by fibrin and inflammatory thickening. The perforation was closed by three quilted sutures and the sutures were covered by an omental graft. The abdomen was washed clean with normal salt solution. Gauze wicks were placed at the bottom of the pelvis through the appendix incision. One wick was placed to the right loin through the appendix incision. Another wick was placed through the median incision to the omental graft. The wounds were closed in part with silkworm-gut sutures.

The patient made an uninterrupted recovery. He was nourished at first by nutrient enemata of peptonized milk, beef juice, egg and salt solution. The average temperature was 99° Fahr., the pulse about 80, the respiration at first 30, later 16 to 20.

About five weeks following this first operation a posterior gastrojejunostomy without a loop was done. This operation was undertaken in order to give the ulcers in the duodenum and stomach, should there be any other than the one which perforated, the best opportunity to heal. Short circuiting the ulcer-bearing area theoretically was indicated. The technique followed was that with clamp and suture. There was no rise of temperature attending the convalescence from this operation. It was interesting to note the thickened condition of the peritoneum and the many adhesions of the bowel to the parietes. Several of these adhesions were divided and the bowel freed.

From this operation the patient made an uninterrupted recovery. Ten months after the first operation the patient reports himself in good health.

I have here recorded two cases of ulcer of the gastro-intestinal canal. One case was an ulcer of stomach. The other case was an ulcer of the duodenum. Both ulcers perforated, causing acute peritonitis. The first patient was operated upon four hours after the initial sign of perforation. The diagnosis of a perforated gastric ulcer was confirmed. The second patient was operated upon forty-eight hours after perforation. It was thought previous to operation that the patient had an appendicitis and a general peritonitis.

Both the ulcers were closed by sutures. The peritoneal cavity in each instance was quickly cleansed by salt flushing and wiping. Cigarette and tube drains were used for a few days only in each case. Both patients recovered. In each case at a subsequent time a posterior gastrojejunostomy was done. The anastomosis was made close to the ligament of Treitz. Both cases recovered from the second operation and are well to-day.

In the case of gastric ulcer the diagnosis was based upon these facts: The man was a young adult with a history of indigestion and dyspepsia for several years. He had had one previous attack of what had been called acute gastritis. The present sudden seizure of acute epigastric and abdominal prostrating pain, the tenderness localized most noticeably in the epigastric region, the board-like rigidity of the abdominal muscles following upon the above story of chronic indigestion, made the diagnosis reasonably certain.

In the case of duodenal ulcer it was impossible from the meagre history to make a definite diagnosis when the man was presented for operation. This man was likewise a young adult and had had indigestion for some years. He was attacked suddenly with violent epigastric pain. The pain became general and when he was presented for operation it was found that the most tender spot was over the appendix. The abdomen was distended and the abdominal muscles were rigid. The leucocyte count was 23,000. He had been ill forty-eight hours. A diffuse peritonitis was present. The cause of the peritonitis was thought to be an appendicitis. Operation proved that this diagnosis was wrong.

In considering these two cases of acute perforation of a gastric and a duodenal ulcer certain interesting questions arise. Obviously, it may be possible to distinguish between an acutely perforating duodenal and gastric ulcer if the individual is seen very soon after the initial symptom of peritoneal involvement. The first case reported was evidently gastric because the pain was at the epigastrium at the outset. Had it been duodenal the pain would have been referred further to the right. The duodenal case was forty-eight hours old when seen, and this lapse of time precluded the possibility of distinguishing it from a peritonitis of other origin. Moreover, the history of the gastric case was more definite and clear than was the history of the duodenal case. After peritoneal symptoms become general it is impossible to distinguish between a perforated duodenal and a gastric ulcer in the absence of a clear history.

Before perforation has occurred it is possible to diagnose a duodenal ulcer from a gastric ulcer. Up to within a short time this has not been true, but recently Moynihan [1] of Leeds and Graham [2] of Rochester have reported relatively large groups of duodenal ulcers. These groups afford valuable data. It is evident that an ulcer of the duodenum is not very uncommon and that it may be

[1] Transactions of the Clinical Society of London, 1902. Lancet, London, March 1904.

[2] Paper read before the Minnesota State Medical Association, June 2, 1904; and the Minnesota Valley Medical Society Dec. 2, 1902.

associated with a gastric ulcer in the same patient. The duodenal ulcer is most commonly found in the first portion of the duodenum. The symptoms are determined by a careful study of the history of the case. That the diagnosis of duodenal ulcer may at times be blind and uncertain is true, especially if it be complicated by gastric pyloric ulcer or some disease of the biliary passages.

The symptoms characteristic of duodenal ulcer are: *Epigastric pain*, relieved by eating and again in evidence some two or three hours later. Moynihan has called this the "hunger pain." This "hunger pain" is relieved by vomiting an acid vomit and by the belching of gas. In duodenal ulcer gas is far more annoying than in cases of gastric ulcer. The type of duodenal ulcer pain is thought by Graham to simulate the pain of gallstone colic far more than does the pain of gastric ulcer. The pain in duodenal ulcer is far more intense than in gastric ulcer. *Vomiting* usually occurs some time after taking food, "delayed vomiting" (Graham). Little food is contained in the vomitus which is often very acid and is followed by temporary relief to the pain and distress. *Blood* may be present in the vomitus, but is more often in the stools (melæna) in duodenal ulcer. "When the duodenum is involved the pain, gas, acidity and vomiting are, as a rule, more intense than if only pyloric ulcer (gastric side) is present, and the type of pain is more apt to approach that of gallstones." (Graham.) From gallstones the distinction is made by the fact that in gallstones the pain is more sudden, radiates more widely, is almost entirely non-dependent upon food, acidity is rarely seen.

In the second reported case a diagnosis of appendicitis with peritonitis was made previous to operation. This is the most common mistake made in the diagnosis of a perforated duodenal ulcer. Moynihan[3] has called attention to the reason for this mistake. It is occasioned by the anatomical arrangements of the parts about the duodenum. The transverse colon directs the escaping duodenal fluid to the right loin. The sulcus between the ascending colon and the parietes is so deep that the escaping gastric and duodenal fluids gravitate to the right iliac fossa and the appendix region. (See Fig. 2.) In the case reported the greatest tenderness was at the point where the acute inflammatory process was most recent. The securing of a most careful history from each patient will alone prevent this mistake from being made.

Duodenal ulcers perforate in about half of all cases. The ulcer may perforate slowly, subacutely or acutely. Duodenal ulcers are more apt than gastric ulcers to exist in latent form causing few characteristic symptoms. These facts which Moynihan and Graham emphasize are very evident from the cases analyzed by them. Ulcers perforating anteriorly are less likely to be walled off by adhesions than ulcers perforating posteriorly.

After the abdomen has been opened and the acutely perforating duodenal ulcer discovered, the ulcer should be sutured. Excision of the ulcer should rarely be undertaken. The peritoneal cavity should be cleansed. This may best be done by thorough flushing of the abdominal cavity with normal salt solution. Personally, I believe that a more thorough cleansing of the abdominal cavity is possible by flushing if a counter-opening is made supra-pubically or in the left loin. After the flushing of the abdomen and the placing of a glass or rubber tube to the pelvis and to the seat of the sutured perforation, the patient should be placed in the semi-sitting position of Fowler.

The question arises in these cases of duodenal ulcer, whether a gastro-enterostomy should be done at the time of the primary operation. If the patient is very ill, if the perforation has occurred a number of hours previous to the operation, it would be unwise to do a gastro-enterostomy. If the patient is in good condition the prolongation of the operation for a few moments that the anastomosis may be made will be safe. In each of these cases of ulcer a gastrojejunostomy was done several weeks after the original operation. In neither case was the pylorus narrowed. There was no obstruction at the pylorus, and yet it seemed wise in view of clinical experience to use the gastro-enterostomy to help the ulcer to heal. In view of the recent experience of Cannon and Blake who find in cats that after a gastro-enterostomy with an open pylorus stomach contents do not tend to go through the new stoma, but through the pylorus as before operation, one may well question whether gastro-enterostomy in the human subject when the pylorus is not obstructed brings about its good result because of drainage or because of some other yet undiscovered reason. Gastro-enterostomy was done in these two cases with the hope that its performance would facilitate the healing of the ulcer-bearing area in stomach and duodenum. The subsequent story of these cases and of similar cases will determine the wisdom of the application of the procedure to the conditions existing.

[3] Lancet, Dec. 14, 1901, p. 1656.

SOME SUGGESTIONS IN REGARD TO THE DIAGNOSIS OF SEMINAL VESICULITIS.

BY HUGH CABOT, M.D., BOSTON,
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BY the publication of Dr. Fuller's book in 1894, attention was drawn to the subject of chronic inflammatory lesions of the seminal vesicles and the relation of this condition to chronic posterior urethritis. While fully prepared to admit that Dr. Fuller did a distinct and valuable service to the profession in the publication of this work, it seems possible that the impetus thus given has carried the pendulum somewhat too far in this direction and that the diagnosis of seminal vesiculitis is frequently made upon insufficient grounds. With a view to determining

what condition would justify the diagnosis, this investigation was begun three years ago.

It is proper that, at the outset, we should define the term "vesiculitis." If we adhere rigidly to the meaning of the termination "itis" it becomes incumbent upon us to demonstrate the presence of inflammation as shown by infiltration and inflammatory exudate. If, on the other hand, the term be held to cover other abnormal conditions not strictly limited by the term "inflammation," we shall have to admit that the presence of the products of inflammation is by no means essential to diagnosis. In this communication I shall regard the term as necessarily involving an inflammatory process, acute or chronic, and regard myself, therefore, as justified in postulating that evidence of an inflammatory condition must be adduced in order to justify the diagnosis.

Before proceeding to the more detailed portions of the investigation let me first take up a few of the more common signs and consider their value and the weight which we are justified in giving them in making a diagnosis.

Distention of the vesicle. — It has been held that marked distention of the vesicles is not normally found and that its presence is indicative of disease. This belief is in part the result of the feeling, now largely accepted, that the vesicle is not simply a reservoir. It has been conclusively shown that the vesicle has a secretion of its own, which is an important integral part of the seminal fluid. This does not, however, justify the view that the vesicle is not in any sense a reservoir for the spermatozoa, as it has been repeatedly found at autopsy that the vesicle in health contains spermatozoa, frequently, in considerable quantities. The researches of Simons and Duhot seem further to prove that the vesicle is not normally empty and the experimental work of the latter suggests that the vesicles readily fill from the vas, being more directly in line with this canal than with the ejaculatory duct. These observations show that a certain amount of distention of the vesicle is to be regarded as physiological. Moreover, distention of the vesicle may result from disease of neighboring organs in which it is not in itself involved, namely, in chronic posterior urethritis and chronic prostatitis. That a sharp distinction can be drawn between these two conditions, I do not intend to imply, but as the terms are still extensively employed in literature they are retained here. The anatomical relation of the ejaculatory ducts to the prostate and posterior portion of the urethra is such that inflammatory conditions in this region are not only liable, but almost certain, to produce a certain amount of pressure upon these ducts. If such pressure be long continued, and especially if changes of a fibrous nature take place in the prostate, obstruction of the ejaculatory ducts will result, producing a more than ordinary distention of the vesicles. On clinical as well as upon theoretical grounds, it seems to me amply proven that a condition of over-distention of the vesicles from this cause not infrequently occurs. (See Cases No. 2 and 18.) It is further to be noted that in chronic prostatitis of non-bacterial origin the same condition may occur, especially behind the hard, fibrous prostates occasionally seen in so-called sexual neurasthenia. On the above grounds, therefore, it does not appear that distention of the vesicle alone, even though of considerable degree and great persistence, is to be regarded as satisfactory evidence of the condition of the vesicle itself, and in the absence of other and more convincing evidences the diagnosis of seminal vesiculitis would not be justified.

Thickening or stiffening of the vesicle. — That true thickening of the wall of the vesicle is sound evidence of an inflammatory process, will probably be generally admitted, but the difficulty encountered is that of establishing the normal size and consistency of these organs. It is hardly possible to find two examiners whose reports of their examinations in these cases will exactly coincide, and what one observer may regard as positive evidence of inflammatory thickening will appear to another well within normal limits. The skill and experience of the examiner here play a very important part, and no report is to be regarded as conclusive unless made upon the results of more than one examination or by one very expert in rectal palpation. It is interesting to observe that surgeons making use of the right hand in these examinations find the left vesicle far more frequently diseased than the right, and if the same observers be required to use the left hand the number of left-sided lesions falls off with striking rapidity. These factors make it difficult to interpret the conclusions of other surgeons upon this point, and it is proper to insist that nothing but a marked degree of thickening shall be regarded as conclusive evidence.

Tenderness of the vesicle and perivesicular structures. — The symptom of tenderness is one particularly difficult to estimate. In the first place it is difficult to establish the normal sensitiveness in this region, which varies immensely in different individuals; and in the second place, a certain amount of tenderness is entirely compatible with a distention due to disease of other organs. It has been found present (see Case No. 5) in cases of marked distention from obstructive disease of the prostate where evidence of inflammation in the vesicle was strikingly absent and where the emptying of the vesicle was followed by a disappearance of the tenderness and future examination failed to reveal inflammatory thickening or other abnormal condition. Tenderness has also been absent in cases in which the other evidence appeared to justify the diagnosis of an inflammatory condition, and it thus appears that tenderness may be absent where inflammation really exists and present where it does not exist. Therefore, while valuable in some cases as contributory evidence, it can hardly be regarded as an important symptom except in acute cases.

It has seemed, therefore, that the above signs are likely to leave us in doubt as to the real underlying condition, and I have turned to the

examination of the contents of the vesicle itself as the most reliable source of evidence. Careful routine examination was instituted upon suspicious cases of so-called chronic urethritis with a view to deciding the value of the evidence to be obtained from the vesicle. Provided it can be shown that a purulent exudate exists within the cavity of the vesicle, the diagnosis will be proved, but in order to do this we must eliminate as far as possible the admixture of pus and bacteria from other sources. These other sources are, first, the urethra, second, the prostate. Only after eliminating contamination from these sources are we justified in drawing conclusions as to the condition of the vesicle contents. The technique which has been employed in the series of cases tabulated below was adopted with this end in view and carried out either in person or under personal observation.

Technique.— Patients were instructed to come with a full bladder, and this was first emptied, in order to obtain a general idea of the amount of pus in the urethra. The urethra was then irrigated with boric acid solution and 4 or 5 oz. allowed to run back into the bladder, which was then emptied. In this way the urethra was rendered as clean as possible. The bladder was then again distended with boric acid or salt solution and the prostate massaged, leaving the region of the vesicle undisturbed. A varying amount of prostatic fluid can be expressed so as to flow from the meatus, but this is not to be regarded as the whole expressed contents, as a certain amount will flow back into the bladder, depending, probably, upon the condition of the posterior urethra. If now the patient empties his bladder, as much has been done as possible to eliminate contamination from neighboring organs. The bladder was then a third time distended and the vesicles massaged, expressing the contents as thoroughly as possible. By this massage a variable amount of vesicular contents is expressed so as to come out at the meatus, but in many cases the major portion of it runs back into the bladder and is passed when that viscus is emptied.

By using this routine an approximately accurate idea of the contents of the vesicle can be obtained and we get it moderately free from contamination. That occasional contamination will occur cannot be questioned, and the results of examination even by this method are not to be taken too literally, but they will show with considerable accuracy the true contents of the vesicle and will demonstrate in the vast majority of cases the presence or absence of pus in any notable amount, in the cavity of the vesicle. It has seemed that the absence of pus might be taken as evidence of the healthy condition of the vesicle mucous membrane, and, though I am prepared to believe that old inflammatory conditions may leave the vesicle crippled without showing signs of inflammation, it seems doubtful if we are justified in declaring a case to be one of true seminal vesiculitis in which the secretion of the vesicle is free from the products of inflammation.

Some difficulty was experienced in staining the material obtained by this technique. It is thick and viscid in consistency, and if left to dry on the slide becomes fluid rather than solid and soon loses its peculiar appearance entirely. After some trial two methods were found which gave satisfactory results. The secretion may be taken directly from the meatus or from the contents of the bladder when emptied, and spread upon a slide with a platinum wire. If spread in a thin layer and promptly stained with a saturated aqueous solution of methylene blue a fairly good picture is obtained. Pus corpuscles, epithelial cells, bacteria, and the heads of the spermatozoa take the stain in a satisfactory manner. The other elements are not stained. Another and perhaps more satisfactory method is to spread the secretion as above described and then dehydrate it with absolute alcohol, which leaves a thin film, in which the cellular elements, bacteria and spermatozoa remain intact. By either of these methods an accurate idea may be obtained of the number and kind of cells, of the bacteria and of the spermatozoa. If it is desired to decide the question of the motility of the spermatozoa the examination must of course, be made promptly without drying, and with as little spreading and crushing as possible. It is also wise to substitute normal salt solution for boric acid in the last distention of the bladder as the acid solution will probably influence the motility; I say "probably influence," because on several occasions spermatozoa obtained from boric acid solution were found motile, perhaps because they were surrounded with their mucoid vehicle to such an extent that the acid did not reach them.

The research was further interesting, not only as throwing light upon the question of the amount of pus in the secretion, but also as showing quite marked difference of appearance in the expressed contents though without other abnormality. Two quite distinct types of material were obtained: the first, more common variety, opaque, bluish-white, viscid secretion; the second, very different, consisting of slightly amber-colored spheroid bodies about a sixteenth of an inch in diameter, and suggesting the appearance of spawn. I was unable to determine what condition influences this change of appearance as both varieties were obtained from apparently healthy vesicles and showed no essentially different characteristics under the microscope.

The following nineteen cases were collected from the records of the clinic. They are in no sense selected cases except in so far as no case was considered in which the examination had not been made by more than one observer. This seemed necessary on account of the marked discrepancy between the observations of different individuals and because I cannot myself lay claim to great experience. The above-described method was carried out in all cases and the results obtained are accurate so far as it was possible to make them so. It will be seen that this series of cases is of the subacute or chronic variety and that no cases of acute inflammation were re-

TABLE OF CASES.

No.	Age.	Duration.	Urethral Discharge.	Urine.	Examination of Prostate and Vesicles.	Microscopic Examination of Expressed Contents.
1	23	8 months	Slight muco-purulent	Shreds in 1st and 2d urines	Prostate moderately irregularly enlarged. Slightly tender. Vesicles both distended. Not tender or thickened.	From prostate, pus and few spermatozoa. From vesicle, spermatozoa, no pus or bacteria.
2	28	13 months	Slight purulent	1st and 2d urines cloudy	Prostate full, hard, not nodular. No change after massage. Vesicles full, not stiff or tender.	From prostate, normal contents. From vesicles, much material, spermatozoa, round cells, no pus or bacteria.
3	23	9 months	Moderate purulent		Prostate enlarged on left. Vesicle, left full and tense.	From prostate, much pus, few spermatozoa. From vesicle, spermatozoa (fish spawn type), no pus or bacteria.
4	23	1 year	Mucoid		Prostate symmetrically and moderately enlarged. Vesicles both moderately full.	From prostate, excessive amount of fluid. From vesicles, motile and non-motile spermatozoa, no pus.
5	46	Many years	Slight mucoid	Slightly cloudy few shreds	Prostate slightly enlarged. Rather tender. Vesicles both much distended. Slightly tender.	From prostate, moderate amount, normal contents. From vesicles, very large amount of mucus with spermatozoa motile and non-motile, some large epithelial cells, no pus.
6	30	Years	Morning drop		Prostate large, soft and boggy. Vesicles moderately distended, not tender.	From prostate, much pus and few spermatozoa. From vesicles, considerable normal contents, no pus.
7	39	10 years±	Morning drop	Coma shreds in 1st urine	Prostate, left side slightly enlarged. Vesicle, left distended and soft.	From prostate, epithelial cells, little pus. From vesicle, spermatozoa (fish spawn type), no pus.
8	19	2 months	Slight purulent	1st cloudy 2d clear	Prostate tender on left side. Vesicle, left moderately full, not tender.	From prostate, excessive, some pus. From vesicle, spermatozoa, no pus or bacteria.
9	21	1 year	Mucoid	1st few shreds	Prostate soft, boggy, slightly tender. Vesicles both moderately distended.	From prostate, many round cells, some pus. From vesicle, non-motile spermatozoa, no pus.
10	28	10 months	Meatus glued in morning	1st urine coma shreds	Prostate boggy, slightly tender. Vesicles, left distended.	From prostate, much fluid, considerable pus, epithelium, no bacteria. From vesicles, spermatozoa, no pus or bacteria.
11	29	5 years±	Slightly mucoid	1st, few shreds	Prostate irregular consistency, tender. Vesicles both distended.	From prostate, little fluid. From vesicles, (much) motile spermatozoa, no pus.
12	19	2 years	None	Generally clear	Prostate normal. Vesicles thickened and tender.	From prostate, normal contents. From vesicles, many spermatozoa, much pus, few round cells, few long, large bacilli.
13	27	3 years	None	2d urine, few heavy shreds	Prostate engorged. Vesicles very full and tense.	From prostate, normal contents. From vesicles, many spermatozoa, some motile, some epithelium, no pus or bacteria.
14	22	4 months	Morning drop	2d urine large shreds	Prostate, left soft and boggy, right small and hard. Vesicles both distended, slightly tender.	From prostate, pus, bacilli and cocci. From vesicle, mostly spermatozoa, little pus. 2 weeks later no pus.
15	27	3 years	Morning drop	Many coma shreds	Prostate symmetrically enlarged. Vesicles moderately full.	From prostate, moderate amount of fluid, some pus. From vesicles, much contents, mostly spermatozoa, little epithelium, no pus.
16	32	2 months gonorrhea denied	Mucoid	1st urine large shreds	Prostate enlarged on right. Vesicles, right full and slightly tender.	From prostate, much epithelium, some pus, few spermatozoa. From vesicle, moderate amount of pus mixed c̄ motile spermatozoa.
17	35	3 months	Morning drop		Prostate normal. Vesicles large, tender and stiff.	From prostate, very little normal fluid. From vesicles, much pus intimately mixed c̄ spermatozoa.
18	28	6 years	Mucoid		Prostate, hard cord on left extending up to vesicle. Vesicles, left moderately full.	From prostate, normal contents. From vesicle, considerable material, spermatozoa, some epithelium, no pus.
19	22	Chronic	Slight muco-purulent	1st urine, few long shreds	Prostate engorged. Vesicles full, not tender.	From prostate, much fluid, some pus, no bacteria. From vesicles, considerable material, many spermatozoa, no pus.

corded. This is due to the fact that acute cases were not regarded as proper subjects for such extensive investigations.

From this small series of cases the following facts appear: Pus in anything more than negligible quantities was found in only 3 cases (Nos. 12, 16, 17) and in these both inflammatory thickening and tenderness were present, thus making the diagnosis of an inflammatory process reasonably clear. The absence of pus or of micro-organisms in the other 16 cases shows that purulent exudates were not present and, therefore, that inflammation of the vesicle was either not present or, if present, was not characterized by pus formation. A number of these cases came to us with the diagnosis of seminal vesiculitis, made, probably, upon a distended condition of the vesicle, with some tenderness, in some of the cases. If we are to regard the symptom-complex of true thickening, tenderness, and purulent exudate as essential to the diagnosis of seminal vesiculitis, these 16 cases must be regarded as examples of subacute or chronic prostatitis and not of seminal vesiculitis, though from the descriptions which we see in various publications on the subject many of these cases would probably be regarded

as seminal vesiculitis. The use of this routine has shown that some care is necessary in distinguishing between vesiculitis and prostatitis, and has made me more cautious in making the former diagnosis. Experience with these and other cases has served to convince me that this elaborate technique is unnecessary. The macroscopical appearance of a fluid containing considerable pus is sufficiently characteristic to readily distinguish it from a normal, or nearly normal, condition and the examiner will readily learn to make this distinction. Finally, I would urge the importance of greater accuracy of observation and more close adherence to terminology, to the end that a reasonable distinction may be made between the cases in which the prostate is the chief offender really requiring treatment and those in which the vesicle itself is diseased and likely to prove a source of supply for recurrent inflammatory outbreaks.

REPORT OF A CASE OF EXSTROPHY OF THE BLADDER, WITH A CONSIDERATION OF OPERATIVE TREATMENT.

BY HENRY G. SPOONER, M.D., NEW YORK.

As cases of exstrophy of the bladder are of rare occurrence, as evidenced by the combined statistics of Henow, Sickel, and Winckel, who collated four cases of this congenital deformity from the records of 116,500 births, I have considered that the report of this case might be of interest. The writer is indebted to Drs. Andrews and Ramon Guiteras, for permission to report the case.

G. W. W., twenty-four years of age, of Springport, Ind., was advised by his physician, Dr. G. R. Andrews, (of Mt. Summit, Ind.), to come to New York and see what could be done to relieve congenital exstrophy of the bladder.

The patient is a robust, healthy-looking man who is able to get about with comparative comfort. He wore woman's dresses until he was nineteen years of age, when he changed to male attire. As the slightest touch of any garment to the bladder causes pain, he has his trousers open in the middle and always wears an overcoat, with the pockets so arranged, that one hand can protect the bladder. The patient has never experienced any sexual desire.

Inspection reveals an angrily inflamed globular mass, 4 in. in horizontal, 4½ in. in lateral diameters, protruding from the pubic region, an inch above the general surface of the skin, covered with mucous membrane of a dark red purplish hue, that is constantly moist, very much hypertrophied, and exceedingly sensitive to the slightest touch Fig. 1. Below the crest of the swelling is the stump of a penis, resting flat on the under surface of the bladder over the trigonum and ureteral openings, that is very nearly as broad as long. A groove evidently intended for a surface of the urethral wall runs along the dorsal aspect of the penis, from glans penis to juncture of penis and bladder, where the openings of the ejaculatory ducts and prostatic sinuses can be seen, that under existing conditions plays no part in micturition, as the urine drips from each ureter directly on to the floor when the patient is standing. Rectal examination shows that prostate and seminal vesicles are absent, there being only a small mass of connective tissue to be felt on the left side by rectal palpation. The ureteral openings can be seen when the dorsal aspect of the penis is removed from its resting place on the surface of the bladder, the right being more plainly visible than the left, and spurts of urine can be seen to gush from right ureteral duct. The urine obtained separately from each kidney is opaque and contains pelvic and ureteral epithelia.

Between the two hip bones, palpation shows that the symphysis pubis is entirely lacking for a distance of 5 in. between the pubic rami. Umbilicus is absent. Testicles are developed and occupy their natural position in the scrotum.

Patient has experienced very little pain during his life. Last February there was a stoppage of urine on right side, accompanied by the most intense pain. Several attacks of renal colic have been experienced since this time. Left ureter has never been occluded. Patient is able to undertake any kind of ordinary labor. However the urinous odor is always perceptible, and it is certain that such an individual is always more liable to renal infection.

Treatment: The attempts to alleviate this condition have been numerous, but an impartial review of the literature must convince the reader of the terrible suffering endured by the patients and of the unsatisfactory results obtained by operation. Plastic operations have been unsuccessful; transplantation of the ureters into the intestine with excision of the bladder, is a dangerous, unsurgical procedure, as it invites infection from the rectum.

Three kinds of operations have been devised: (1) Plastic operations to make an artificial covering for bladder and urethra. (2) Operations for narrowing the defective area by approximating the two innominate bones. (3) Operations to divert the flow of urine in a more suitable direction.

Plastic operations have been devised by Nela-

tion, Wood, Roux, Holmes, Thiersch, Billroth, Maydl, Ayres and Pancoast.

The early attempts from 1844 to 1852 were uniformly unsuccessful, as the flaps were not reversed. Turning of the flaps so that the skin surface faced the bladder was first suggested by Roux in 1852. In 1863 reversed and superimposed flaps were first employed by Holmes. From these earlier operations the later plastic procedures of Wood, Thiersch and Maydl have been derived.

In Wood's operation three flaps are used to cover the vesical defect, — an upper and two lateral transplanted flaps.

In Thiersch's operation two lateral flaps are formed, one to cover the lower half of the defect and the upper, the upper half. The second flap is made after the first has healed and taken from the opposite side so as to close in the upper half of the bladder. Later the two edges of the adjacent flaps are freshened and united, and lastly the upper margin of the second flap and superior edge of opening in abdominal wall were freshened and sutured. Thus the treatment involved by this method extended over twelve to eighteen months, and necessitated a large number of separate operations. Billroth modified this operation, with the result that nineteen separate operations were performed on one patient in a period of twenty-two months. After all this suffering had been endured for the benefit of science, most of the patients treated by this method suffered from the formation of calculi, so that it was necessary to reopen the bladder so tediously formed.

Of the plastic operations the one devised by Maydl has been the most popular. Flaps of abdominal skin are turned over the bladder membrane, so that the surface of skin forms the anterior wall of the new bladder.

By these plastic operations the condition of the patient was not much improved. When the defect is great large flaps must be made, which are apt to slough away on account of the formation of fibroûs tissue at the pedicle shutting off the blood supply. The stitches were apt to be torn by the bladder being forced against the flaps by intra-abdominal pressure. The operation had furnished a covering for the exposed mucous membrane, under favorable conditions, but no sphincter muscle of the bladder was formed, so that a receptacle for urine must be worn, as formerly. In the course of time hairs grew from the flap of skin forming the anterior wall of the bladder, which served for the deposition of phosphatic salts, caused by decomposition of the urine. If these stones could not be removed by irrigations or instruments, the surgeon must incise the anterior wall of the bladder to remove them, so that it can be justly said that the patient has not been benefited.

It can be readily seen that treatment by plastic operations is painful and tedious. That operative treatment is not without danger is evidenced by the fact that there were 20 deaths in the 100 cases collected by Ashhurst, a mortality that is probably below the average, as the unsuccessful cases are not always reported. Even some of the so-called successful cases have resulted in the death of the patient, E. G., "Dr. Ashhurst had a year ago successfully operated by Wood's method." The deficiency in the abdominal wall in this case was more than ordinarily great, necessitating a second operation that caused the death of the patient thirteen hours later. As patients may live to old age without any operation, the surgeon should not resort to an operation that has been attended with such a large percentage of partial or complete failures as the flap operations for extroversion of the bladder.

In 1885 Trendelenburg originated the method of treatment of narrowing the defective area by approximating the two innominate bones. The two sacro-iliac synchondroses were divided, and the two pubic bones were brought together by a leather girdle fastened around the pelvis, whose ends crossed in front and were pulled down by weights. After the bones were approximated they were sutured. After several weeks when the bones have become firmly united, the edges of the bladder are freshened and an endeavor is made to close them. Two of Trendelenburg's five cases died, the other three had fistulæ. The other attempts to close cleft symphysis without severing the sacro-iliac synchondroses have been unsuccessful.

The early attempts of Simon and Smith to divert the flow of urine in a more suitable direction were unsuccessful.

In 1881 Sonnenburg exstirpated the bladder and inserted the ureters into the dorsal groove of the penis. The gap on the abdominal wall was closed by flaps without difficulty. The ureters became fixed in their new situation and successful cases have been reported by Zesas, Niehaus and others. This operation when successful permitted the patient to use a urinal with comfort.

In 1892 Maydl dissatisfied with plastic operations exsected the trigonum with both ureters from the wall of the bladder, and implanted them into the sigmoid flexure of the colon. The rest of the bladder was dissected out. This operation was devised to take advantage of the oblique course of the ureters upon the wall of the bladder before entering the bladder, together with the protection afforded by the arrangement of the mucous membrane at the ureteral ducts. His first patient, a man of twenty years, recovered and passed his urine every four to eight hours. Since then 22 cases have been operated upon in this manner with three deaths, a good showing for so radical and difficult an operation. Nevertheless, that fears are not of a purely theoretical nature has been proved by the death of a case from pyelitis fifteen months after the operation, as well as by the published clinical experiences, as well as the results of experiments upon the lower animals of Bardenheur, Smith, Tuffier, Gluck and Zeller, Novaro and others. When healing results, the sphincter ani insures complete continence.

In 1895 Vignoni, after experimenting with animals, recommended his operation, to provide a V-shaped valve cut from the anterior wall of the bowel. The danger of this method consists in the liability of the orifices of the ureters to become blocked, caused by adhesions between their cut ends and the serous membrane of the flap. Krynski (1896) placed the ureters in the space occupied by the submucous connective tissue of the rectum. A flap was then made of the serous and muscular coats of the rectum, reliance thus being placed upon the pressure of the contents of the rectum to occlude the ureters. Pisani (1896) transplanted the wall of the bladder with the ureteral ducts to the posterior wall of the rectum, relying upon a supposed sphincter-like action of the vesical mouths of the ureters.

In 1898 Fowler made a special valve from a tonguelike projection of mucous membrane of the rectum, in order to combine a sufficient valve action with the additional safeguard of the compression of the ureters by the circular muscle fibers of the bowel during defecation. The case of a boy six years old was reported, who in the course of time passed his urine at normal intervals.

Pousson (1898) advocated the operation of Sonnenburg. However, Forque, who had performed this operation seven times, admitted that an ideal result was not always to be obtained, even by this method.

In 1899 Carl Beck succeeded in making a vesico-rectal anastomosis in a case of tuberculosis of the bladder. The ends of the ureters were left hanging free in the bowel, which seems to have worked very well in this case, as the patient was able to hold his urine four hours at a time five weeks after the operation.

The cases operated upon by Allen and Herczel (1898) and Josserand (1899), as well as the cases operated upon by German surgeons, show that the results of operation by the transplantation method make a very favorable showing, compared with the best the literature of autoplasty has to show; nevertheless the dangers from infection from the transplantation method are very grave, — Mikulicz and Arlow have each lost a case, — as in the course of time the resistance of the kidneys to infection from the rectum slackens.

When we have a patient who can get about, who can live in comparative comfort, who has lived for many years with extroversion of the bladder with little suffering, it is best to consider operative interference a long time, and then hesitate, before operating.

In conclusion it may be said;

(1) That continence is never obtained by the most successful plastic operation.

(2) Implantation of the ureters into the bowel is a difficult operation, and apt to be followed by infection of the kidneys.

(3) The operation of Sonnenburg is a simple operation and with less danger than the others and permits the patient to wear a comfortable urinal.

(4) That patients can live to old age without any operation.

Clinical Department.

BOSTON CITY HOSPITAL CLINICAL MEETING.

Feb. 9, 1905.

Dr. Geo. G. Sears in the Chair. Dr. L. R. G. Crandon, Secretary.

The following cases were presented:

ANEURISM OF THE AORTA.

By H. L. Burrell, M.D.

On Dec. 29, 1904, I saw with Dr. Ames a man, twenty-seven years of age, single, who had an aneurism of the arch of the aorta. He had a history of syphilis and of 15 or more whiskies a day, several before breakfast. Four months before he had developed a cough, with sputum tinged with blood, and for the past fortnight has had difficulty in swallowing. The pain is most marked in the upper part of the right chest on swallowing solid food. Has lost twenty pounds in the past year.

The physical examination was as follows: Poorly developed and nourished; slightly cyanotic; conscious and rational; very weak; pupils equal and react. There was no tracheal tug, but some difficulty in respiration. The left radial pulse was fuller than the right. There was slight dullness and broncovesicular respiration at the right apex down to the second rib in front and to the angle of the scapula behind.

The patient for the past fortnight has grown steadily worse. Dyspnea is very marked and extremely uncomfortable. Sleepless nights and loud, paroxysmal, brassy cough. The cause of the dyspnea was not due to paralysis of the vocal cords. Patient was fluoroscoped by Dr. Williams, who found a tumor mass the size of an orange, just above the base of the heart which pulsated. It was believed by Dr. Ames and myself that the cause of the dyspnea was due to pressure on the primary bronchus. Oxygen gave the patient considerable relief.

An operation was planned for the removal of the patient's sternum to allow the aneurism to expand and to relieve direct pressure on the trachea. In the meantime the patient was vigorously treated with iodide of potash and morphia in increasing doses, from these drugs he received relief. Two days after he entered my service he had a hemorrhage from the mouth, about 2 oz. This was followed, day by day, by hemorrhages which varied in quantity up to 8 oz., and came from the mouth and from the rectum. He died on Jan. 4, 1905, from one of these hemorrhages.

CARCINOMA OF THE GALL BLADDER.

A woman, thirty-five years of age, single, entered my service Oct. 17, 1904. Her family history was not of importance. She had been on Dr. Shattuck's service for a fortnight. She was supposed to have cholecystitis, and I operated on October 20. An incision 4 in. long was made in the right rectus muscle over the gall bladder region, and on opening the peritoneum there was an escape of a large amount of pale serous fluid. A mass of considerable size was found composed of the hepatic flexure of the colon, mesentery and omentum. The mass included the liver, and the position of the gall bladder. From its macroscopic appearance the mass appeared to be a carcinoma. The abdomen was closed in layers and the wound healed by first intention.

The carcinomatous mass was so extensive that it would have been useless to have attempted its

removal. In about three weeks the patient was out of bed and tried to get about, but she was obviously failing. In about another fortnight she developed considerable persistent, dull, abdominal pain, which was relieved by morphia, but not for six weeks following the operation did she develop jaundice. The patient literally faded away, growing weaker and weaker, day by day, for two months.

INTESTINAL OBSTRUCTION FOLLOWING GASTRO-ENTEROSTOMY FOR PYLORIC ULCER.

BY F. B. LUND, M.D.

Patient was a young woman, thirty-six years of age, who had been in the hospital in December, 1903, suffering from gastric ulcer. She had vomited blood off and on for three years. Operation was advised at the time, but refused. She had previously been operated upon for right femoral hernia, with success. In May, 1904, five months after leaving the hospital, she vomited a little blood. Through the summer she lost about 35 lbs. She was able to do but little, and in October and November, suffered much gastric pain and vomiting. Pain had no definite relation to meals. Examination showed distinct tenderness in the right hypochondrium on deep pressure. No spasm. During the summer she had had considerable pain in the right iliac region, so that her physician suspected appendicitis.

On December 9, a right rectus incision four inches long was made just above the umbilicus. The stomach was found dilated. There were several enlarged lymphatic glands at the base of the great omentum close to the pylorus. There were two small scars, smooth, not indurated, close to the pylorus. There was considerable induration of the pylorus itself. No scars could be made out over the duodenum. The appendix was found to be very long, contorted and adherent. It was removed, and a posterior gastro-enterostomy, by Moynihan's method, was performed, a loop about 14 in. long being taken. An entero-enterostomy was then performed. The operation, on account of the difficult removal of the appendix, was longer than usual, and the patient was more thoroughly etherized than is advisable in these cases. The whole procedure took about one and one-quarter hours. Instead of presenting the extremely favorable picture which is usually seen in these operations, the patient was very ill for two days, coughing a great deal and raising a good deal of thick mucus. Pulse was 120. She looked badly and occasionally vomited. This was apparently due to mucus in the throat. After washing out the stomach, however, the vomiting ceased, except occasionally, when induced by a cough.

The patient had a very fair convalescence. She was kept in bed for three weeks, and left the hospital for the Convalescent Home in five weeks. She was at that time looking extremely well, and able to eat more heartily than she had for years.

After two weeks at the Convalescent Home, she began to have a steady, sharp pain in the epigastrium, and vomiting. There was no blood in the vomitus, but whatever food she took she immediately vomited. She was sent back to the hospital, and when examined on Jan. 31, was found to have marked tenderness in the epigastrium, localized distention in the left side of the epigastrium, and considerable muscular spasm, and to be vomiting occasionally a dark brown fluid. The abdomen was reopened on Jan. 31, and it was found that the line of the enteroplication had been forced downward and to the right, apparently on account of coughing, so that the bowel was twisted on itself, and in this position had become firmly adherent to the under surface of the abdominal scar. The adhesions were rather recent and were separated without difficulty. They had resulted in obstruction of the efferent loop so that the bile had been forced back into the stomach. This loop was very much dilated. On replacing the intestines in their normal position the line of enteroplication was sutured to the mesocolon so that it could not again become markedly displaced.

It was interesting to observe that the line of enteroplication, which was about 2 in. long, produced firm constriction of the intestine and was apparently efficient. This operation was seven weeks after the primary operation. Whether it will remain firm in future, of course is not known. We have present evidence that the enteroplication in diaphragm form is not sufficient, as shown by Crile's case. Whether longitudinal enteroplication is inefficient, however, has not yet been shown.

The case is an interesting one, as showing the possibility of obstructions from adhesions after a gastro-enterostomy, and also the efficiency of the enteroplication seven weeks after the primary operation.

The writer is of the opinion that this accident would not have happened had it not been for coughing and vomiting which followed the operation, due to too much ether. Mayo has called attention to the fact that after the abdomen is opened, and while the suturing is being done, very light anesthesia is sufficient.

The patient has made an excellent recovery, is eating well, gaining weight and has left the hospital.

CASE OF OPERATION FOR CARCINOMA OF THE CHEEK AND UPPER AND LOWER JAWS.

Patient, about seventy years old, was first operated upon by Dr. J. B. Blake, April 22, 1904, for a small carcinomous nodule, the size of a pigeon's egg, on the inner side of the left cheek. Dr. Blake at the same time removed some glands below the angle of the jaw. On the 13th, he performed a plastic operation, closing an opening in the cheek.

The patient re-entered the hospital June 27, and again Dr. Blake removed a gland under the angle of the jaw. He was comfortable during the summer, but on Oct. 6, 1904, he re-entered, with a recurrence of the growth at the site of the old operation scar which extended from the angle of the left side of the mouth back to the pharynx. At that time he was operated upon, carrying an incision about the mass, and freeing it from the alveolar process of the upper and lower jaw. After its removal the wound could be brought together. There was some limitation of opening the jaw. This limitation increased, and when he returned, in January, 1905, he could hardly open the jaw at all and suffered much pain and discomfort. For that reason an extensive operation was performed, splitting the cheek from the angle of the mouth to the back of the lower jaw, removing the alveolar process of the upper jaw and one half the hard palate, dissecting the growth from the side of the pharynx, where it lay close against the inner surface of the ramus of the lower jaw, and removing about two inches of the lower jaw, which was involved in the growth. Involved glands were dissected from the upper cervical triangle where they lay against the anterior surface of the jugular vein and the pneumogastric and hypoglossal nerves. The wound in the cheek was sutured, and the cavity in the mouth packed with iodoform gauze. A stomach tube was used for a day or two. There was very little hemorrhage or shock from the operation, and to his

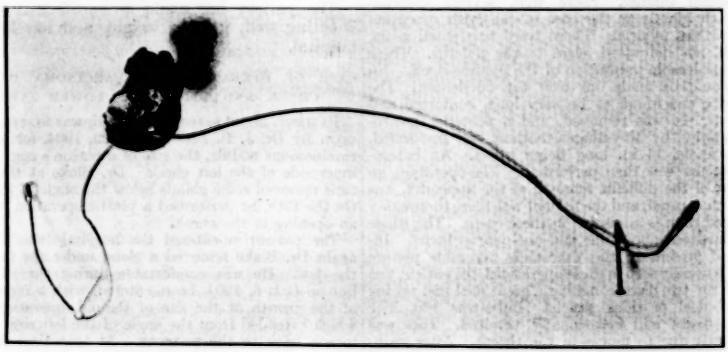
great delight, he was able to open his mouth about an inch, a false joint having resulted where the piece of the jaw was removed. The cheek flap was somewhat difficult to get together and was rather thin, and an opening has developed about an inch back of the angle of the mouth. This it is hoped to close later by a plastic operation.

In this case recurrence is naturally to be expected, but at the last operation a considerable amount of painful growth was removed, and at the same time the patient was enabled to open his jaw. For these two cases I wish to express my indebtedness to Dr. Burrell, on whose service they occurred.

ATTEMPTED SUICIDE BY SHOOTING; "SPECTACLE-TEMPLE" CARRIED INTO THE BRAIN BY THE BULLET; REMOVAL BY OPERATION.

BY L. R. G. CRANDON, M.D.

THE rounded end of this wire protruded 1 in. from a suicidal pistol wound in the right temporal region. On turning back an osteo-plastic flap the rest of the wire with the bullet fused on it was found buried in the right frontal lobe of the brain. The bullet in its passage had carried before it the spectacle-wire and had fused on it. The wire then served apparently to hold the bullet from penetrating far into the brain.



PLEURISY WITH EFFUSION, TUBERCULOUS PERITONITIS. ADDISON'S DISEASE.

BY GEORGE B. SHATTUCK, M.D.

D. C., twenty-two years of age, single, female, entered the hospital Oct. 27, 1904. Illness began about ten days before entrance with impaired appetite, cough, sharp pain in upper thorax and dyspnea which was slight. On entrance she appeared in good general condition and well nourished. The physical examination showed the presence of fluid in the left pleural cavity, and was otherwise negative. There was some elevation and irregularity of temperature.

Two days after entrance the left pleural cavity was aspirated and 1,000 cc. of clear fluid withdrawn which was sterile. There seemed to be a gradual reaccumulation of fluid, and she was aspirated again Nov. 12, only a very small amount of fluid being obtained, and there were evidences of thickened pleuræ. Up to this time the appetite and general condition were good, and she was out of bed somewhat. Nov. 16, there was a dry friction rub over left thorax up to spine of scapula in the back and the third rib in front. Nov. 20, she continued to run an irregularly elevated temperature, her cheeks were flushed and she was kept in bed. There was some sputum in which no tubercle bacilli could be found, and a low white count. There were occasional night sweats. Nov. 28 is the first mention of indefinite abdominal pains, but the physical examination of the abdomen was negative. The appetite and sleep continued good.

Early in December there were complaints of indefinite non-localized abdominal pain and tenderness. The appetite began to fail, there was some nausea, irregular diarrhea and decreasing strength. Dec. 10, there was noted slight pigmentation of the skin about the upper and lower lips and in the axillæ. The house physician, Dr. England, had suggested its presence about the lips some days earlier. There was general soreness of the abdomen, slight distention, no evidence of fluid. Dec. 14, continued looseness of bowels, occasional vomiting, fluid wave in abdomen.

Pigmented areas noticeable on palmer surfaces of wrists, flexures of elbows and about the waistband. The symptoms of tuberculous peritonitis continuing, the patient was seen by Dr. Ames and Dr. Watson Dec. 18 and operation was advised and accepted.

Before being transferred to the surgical side the patient was treated for a few days with supra-renal extract, but without effect. She was transferred to surgical Dec. 21, a laparotomy was done by Dr. Watson, Dec. 23, and she died Dec. 29, about two months after entrance to the hospital and two months and a half after the appearance of the first symptoms.

Clinically the dependence of the pleurisy upon tuberculosis was suspected at an early date, but proof was lacking until the symptoms of tuberculous peritonitis presented themselves. Almost contemporaneous with the development of these symptoms were indications of a probable tuberculous affection of the suprarenal bodies as suggested by the usual symptoms of Addison's disease — discoloration of the skin, prostration, anorexia, diarrhea, cardio-vascular asthenia. Tuberculous lesions of the suprarenal bodies is a common cause of Addison's disease; other affections of these bodies may produce the same symp-

toms, and occasionally pressure or inflammation involving the semilunar ganglia may do so. Pigmentation occurs in tuberculous peritonitis.

The pigmentation may be absent. In our case it developed almost imperceptibly, and was slight in extent and degree.

Allow me to illustrate this by a case reported in *American Medicine*, Dec. 24, last, by Dr. H. B. Whitney of Denver, a former house officer of this hospital:

The patient was a healthy, laboring man of thirty-three, who was taken with sudden weakness two months before death, but did not give up work until about a month later. His only symptoms throughout the disease were progressive muscular weakness and toward the last, one or two attacks of apparent collapse. There was no discoloration of the skin and no noticeable loss of weight. Inability of the patient to speak English and the peculiar combination of a very acute course without bronzing made the diagnosis peculiarly difficult. The case was considered inexplicable until autopsy disclosed tuberculous adrenals. Recognition of this form of Addison's disease would seem to depend chiefly upon remembrance of the fact that there may be no bronzing and that the course may be as rapid as that of an acute infection.

With the rapid and general development of tuberculosis which took place in our own case, it is difficult to say just how far the involvement of any one organ was responsible for the appearance of certain symptoms.

I will add that the catamenia were absent while the patient was in the hospital, but her accounts in regard to them before that were somewhat conflicting.

How far the pigmentation in these cases is a trophic phenomenon dependent upon some affection of the abdominal, sympathetic system, or how far it is the result of faulty metabolism due to changes in the structure of the adrenals I will leave to the pathologists to tell you.

A CASE OF TUBERCULAR SALPINGITIS WITH RUPTURE INTO RECTUM AND SLOUGHING OF A PORTION OF ANTERIOR WALL. OPERATION.

BY E. B. YOUNG, M.D.

Case I. A. C. Twenty-one years, waitress. Admitted to Boston City Hospital, Dec. 20, 1904.

Six days before entrance severe pain in lower abdomen with fever, chills and vomiting. Had no previous pain and considered herself well.

After the acute symptoms had passed a mass could be felt on either side behind the uterus.

Operation advised and accepted. On opening the abdomen both tubes were found densely adherent and covered with small tubercles. The right tube had previously contained an abscess which had discharged into the rectum; but in so doing, had caused a large part of the anterior wall of the rectum to slough. As it was impossible to close this on account of the friability of the tissues, a fold of the long sigmoid flexure was brought down and sutured over the defect. Then a colostomy was performed above and the pelvis drained through the abdominal incision.

The patient has done well and will recover.

The interesting points are:

(1) That such a process could go on for a long time with so little disturbance.

(2) That the acute attack seems probably due to a secondary infection of the cavity with colon bacillus, although I know no method of absolute proof.

(3) That there has been so little trouble from the rectal defect. The bowels with an enema per rectum discharging some feces naturally, while part escapes by the colostomy wound.

RUPTURE OF ABSCESS OF FALLOPIAN TUBE; PERITONITIS; OPERATION; RECOVERY.

Case II. E. A. Thirty-five years, milliner.

Two weeks before entrance severe pain in lower abdomen with some fever.

Recovered and felt quite well until two days before entrance, when a similar attack came on.

At entrance a tubal abscess could be felt on the right side, but nothing seemed to demand immediate operation.

About 4 P.M. on the succeeding day, the tube ruptured and when I reached the hospital the patient was suffering frightful pain. Operation was performed at once and pus found in all parts of the greater peritoneal cavity, but mostly above the omentum.

After removing the ruptured tube, the abdomen was irrigated without disturbing the omentum and where the pus had penetrated underneath this, it was sponged away with salt solution.

She had some shock, but suffered no pain and has recovered. We took no culture at the time, but had a good illustration of the virulence of the infection, as the wound was covered with a gray membrane within forty-eight hours.

The sutures were removed and after the wound cleared up the fascia was united with catgut.

The interesting points are:

(1) Immediate relief of pain by the irrigation of salt solution.

(2) The protection by a large omentum of a great portion of the bowel. This undoubtedly saved the patient's life.

STAB WOUND OF ABDOMEN; EXTRUSION OF PERFORATED INTESTINE; OPERATION; RECOVERY.

BY DAVID D. SCANNELL, M.D.

J. D., age eleven, entered the hospital on the evening of Jan. 6, 1905, having been stabbed in the abdomen with a large pocket knife two hours previously. On entrance his relevant physical examination was as follows: Condition of moderate shock; face pale and expression anxious; general clammy sweat; pulse 110 and of fair volume and tension; temperature 100°; tongue coated; heart and lungs normal; abdomen, two inches below umbilicus, was a large circular mass of extruded jejuno-ileum, in actual length 9 in., moderately distended, lustreless, and brownish-red from strangulation; the whole was covered by a thin layer of omentum; the abdomen elsewhere was negative. Immediate operation was done; the extruded gut was protected by towels wet in hot salt solution while the general surface of the abdomen was carefully scrubbed with soap and water, salt solution, and 70% alcohol; the gut itself was cared for by copious washing with salt solution and careful sponging; further examination disclosed a small perforation about ¼ in. in diameter about the center of the mass, and 1 in. from the mesenteric border; from this, there escaped, with every descent of the diaphragm and contraction of the recti, two or three drops of intestinal contents, more being prevented by a small flap of mucous membrane

which acted precisely as a valve. This perforation was at once closed by three interrupted Lembert silk sutures; further search revealed no more punctures; the wound in the abdominal wall itself was found to be ¾ in. in length and situated just to the right of the median line in the inner edge of the right rectus; this was enlarged downward ¾ in., and with no very great difficulty the extruded gut and omentum were replaced; there was a slight degree of hemorrhagic infiltration of the right rectus muscle in the wound. The general cavity was flushed with hot salt solution, and the wound closed by layer sutures. The convalescence was uneventful, the patient being allowed to get up on the 11th, and leave the hospital on the 15th day.

Three points are of interest in this case: (1) that under the conditions the intestine should have been perforated; (2) that so much intestine should have escaped through so small a wound; and (3) that the perforated segment of gut followed the withdrawal of the knife.

Medical Progress.

REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D.,
AND
BY H. W. CUSHING, M.D., BOSTON.

INTRAVENOUS INJECTIONS OF THYMOL IN STAPHYLOCOCCUS INFECTION.

FIORENTINI [1] considers that thymol in intravenous injections has almost a specific action in controlling the infection of the staphylococcus aureus. He believes that it controls the cocci by producing a hyperleucocytosis with polynucleosis. He uses it in doses of 10 cm. per kilogram.

THYMUS DEATH UNDER LOCAL ANESTHESIA.

Nettel [2] under Schleich's local anesthesia removed the thyroid gland from a woman who had exophthalmic goiter. The patient died fifteen minutes later, and the autopsy showed that the thymus was large and that the lymphatic system, especially at the base of the tongue, in the spleen and the intestines, showed marked hyperplasia.

BLINDNESS AFTER PARAFFIN PROTHESIS OF A SADDLE NOSE.

Mintz [3] had a case in which he injected about 1.5 cm. from the tip of the nose, on each side, about .33 gm. of paraffin at 43°. The patient complained of pain in the left eye in three minutes and was completely blind in twenty minutes. He thinks that there was a thrombosis extending through the external vein to the inferior ophthalmic vessel. Inside of two months there was atrophy of the nerve. He quotes two cases of Holden and Leiser of amaurosis after subcutaneous injection of paraffin. He still continues to do this operation, but warns his patient of what may happen, and they frequently insist on this cosmetic operation being done.

[1] Le iniesioni endovenose di Thymol nel decorso della infesione sperimentale da stafilococci piogene aureo. Gazzetta degli Ospedali, Milan.
[2] Archiv. f. klinische Chirurgie, Langenbeck's Berlin.
[3] Centralblatt f. Chirurgie. Amaurose nach Parallino-Plastik einer Sattelnase.

IDEAL METHOD OF REMOVING THE VERMIFORM APPENDIX.

Howard A. Kelly,[4] in an interesting paper on this subject, states that there are three principal objects to be attained in the technique of removal of the vermiform appendix, namely: "(1) To remove the appendix without contaminating the surrounding peritoneum with any of the bacterial flora, which are often virulently infectious and always abound on its mucous surface; (2) to treat the mucosa in such a manner as to prevent any contamination while closing the opening into the bowel made by the amputation; and (3) to dispose of the stump so as to avoid any risk of infection after the closure." His method of operation is as follows: "The appendix is exposed, and the mesappendix is tied off. A circular suture of fine silk is then laid around its base, about a centimeter distant, but not drawn up. The appendix is then grasped at its base with the forceps and crushed, while just beyond the forceps (distally) it is seized with an ordinary artery forceps to prevent the escape of its contents. Paquelin's cautery is now used to amputate the appendix between the two forceps, when it is laid aside in the grasp of the artery forceps. The crushing forceps, which is now to be converted into a cooking, sterilizing, sealing iron, is carefully isolated by tucking dry gauze under each blade, so as to lift the end of the forceps up on a cone, away from all contact with the cecum. The next step, which is the most important one, is to keep the red-hot point of the cautery slowly travelling up and down the groove in the crushing forceps for from forty to sixty seconds, so as to burn off every vestige of the stump, and at the same time to heat the forceps so thoroughly that the narrow ribbon of crushed appendix in its grasp becomes converted into a translucent gristle-like substance, in which the lumen of the appendix is completely destroyed. The lumen is so effectually obliterated that it never gapes. The final step is the tightening of the purse-string suture, and the inversion of the cooked base, after which the serosa is carefully united over the whole with another row of fine silk sutures." He considers the advantages of his method to be: "Its perfect simplicity. There is at no time any exposure of the infected mucosa. The stump is not ligated or bruised, and thus left as a culture medium for whatever organisms may have lain in it. The appendix is amputated with the cautery and the proximal portion is sterilized and effectively sealed. The inverting sutures are then applied over an area as free from contamination as the rest of the peritoneal cavity."

THE RESULTS OF THE OPERATIVE TREATMENT OF TYPHOID PERFORATION.

Zesas (Beni) concludes after a critical review of the literature of the subject and a study of

[4] American Medicine, Dec. 31, 1904, p. 1123.

255 reported cases that as far as surgical experience goes, it teaches that the results obtained by operation are encouraging and that they will become more favorable if laparotomy is accepted as the only rational treatment for an intestine perforated by a typhoid ulcer and if it is done early. The article [5] is an interesting one. In the 255 cases collected, 95 patients recovered. The mortality is much greater when the operation is later than twenty-four hours after the perforation. Zesas gives his own and Hartman's statistics:

Hartman operated in first 24 hours, 75 cases, 19 recoveries.
Zesas " " 24 " 67 " 24 "
Hartman operated after first 24 hours, 38 cases, 6 recoveries.
Zesas " " " 24 " 33 " 3 "

Zesas concludes that multiple perforations are the exception rather than the rule. He quotes Keen's statistics, 29 multiple cases in 167 patients, and Cane's list of 17 multiple cases in 114 patients. He directs that when the perforation is single, the intestine should be sutured; if multiple, resection; recurring perforation occurred eight times in Zesas' list, on account of the tendency to bronchitis and pneumonia, from ether or chloroform; cocaine anesthesia is recommended and median laparotomy is recommended when any doubt of the site of the perforation exists; if the site is indicated, as by a local peritonitis, then the incision should be made over the cecum. Some operators use both the lateral and median incision; some a median and two lateral ones.

As a rule the abdomen is irrigated with several liters of warm salt solution after the intestine is sutured. The abdomen is drained with a rubber tube or a Mikulicz tampon. Multiple incisions for drainage have no greater efficiency than drainage through a single incision.

TREATMENT OF INVETERATE PRURITUS ANI.

Ball [6] makes a curved incision on either side of the anus, but these incisions do not meet either in front or behind. The sphincter muscles are exposed by careful dissection, frequently with scissors. The bridges of skin in front and behind are undercut well beyond the area of irritation. The effect is to produce superficial anesthesia to the part and the irritation is immediately relieved. The flaps of skin about the anus are sutured in position.

HEPATOPTOSIS COMPLICATED BY GASTROPTOSIS: A SUGGESTION AS TO TREATMENT.

Ellsworth Eliot,[7] presents a new method of operating for cases of gastroptosis that are accompanied by a descent of the liver. He states that "The object of the operation here suggested is to anchor the liver so securely in its position that the displaced stomach and other abdominal viscera will be relieved of its superincumbent weight, and will then with or without general therapeutic measures return more or less completely to their normal position, with a corresponding improvement in their function. The operation consists in the exposure of the liver and stomach through a median incision above the umbilicus. The obliterated umbilical vein, forming a thick cord in the free edge of the falciform ligament, is then identified and drawn forward until it comes in contact with the parietal peritoneum. The hepatic extremity of the ligament then rests aganst the under surface of the right lobe of the liver in front of the transverse fissure. The lower or umbilical extremity is in close contact with the anterior parietal peritoneum, the two portions of the ligament now forming a right angle. In this position the round ligament is sutured to the anterior parietal peritoneum, with chronic gut, and the redundant falciform peritoneal reflection is spread out laterally and sutured to the contiguous portion of the parietal peritoneum with the same material, in this way forming a species of shelf for the under surface of the liver. The abdominal wound is then closed in layers."

SOME CONSIDERATIONS REGARDING WOUNDS OF THE LIVER.

Tilton [8] has presented a very interesting paper on this subject. He feels warranted in making the following conclusions: "The prognosis of the severer cases of wounds of the liver alone has improved of late years, especially under early operative treatment. Many cases must necessarily, of course, be promptly fatal from shock or hemorrhage or from associated injuries of other organs. Many others can be saved by operation which would otherwise die from hemorrhage or some complication. The treatment of all open injuries should be early laparotomy for the purpose of hemostasis, thorough examination, and prevention of infection. As regards subcutaneous ruptures, the mild cases without marked symptoms of collapse or internal hemorrhage should be treated expectantly. Cases in which there are marked collapse or signs, local or general, of internal hemorrhage should be treated by early laparotomy, with suture or packing of the wounded liver. The mortality of wounds of the liver alone will in all probability diminish from year to year with the more general adoption of early laparotomy."

A REVIEW OF ONE THOUSAND OPERATIONS FOR GALLSTONE DISEASE, WITH SPECIAL REFERENCE TO THE MORTALITY.

Wm. J. and Charles H. Mayo[9], in an interesting paper on this subject, state that from June 24, 1891, to Dec. 1, 1904, they had made 1,000 operations upon the gall bladder and bile passages, with 50 deaths (5%). In the benign series there were 960 cases with 4.27% deaths. For malignant disease, 9 deaths in 40 operations give a mortality slightly in excess of 22%. Of the common duct operations there were 137 benign, with 16 deaths, 11.7%. This gives a heavy mortality, but, as already pointed out, it is really a

[5] Wiener Klinik Jahrgang, xxx. Hf. ii, Nov., 1904.
[6] British Medical Journal, Jan. 21, 1905.
[7] Medical News, Nov. 12, 1904, p. 913.
[8] Annals of Surgery, Jan., 1905, p. 20.
[9] The American Journal of the Medical Sciences, March, 1905, p. 375.

death-rate of operation and disease, and means that 7% failed to recover from the direct results of the operation, that is, died within a few days; while 4% recovered from the operation, but did not regain sufficient strength to leave the hospital. Many cases operated were in desperate condition from prolonged icterus, anemia, etc. No cases were refused operation if they so elected after a fair statement of the facts. Operations for malignant disease are discouraging: 40 operations, with 9 deaths in the hospital, and of those that recovered comparatively few received sufficient palliation to repay the immediate risk, suffering and expense. Two cases, however, can be considered favorable as to cure; both were instances of early carcinoma of the gall bladder. In a few patients a thick-walled and functionally useless gall bladder was removed, and examination showed malignant involvement, and in the two cases referred to no return had taken place after more than two years. The authors state that next to malignancy and acute perforative infections of the gall bladder and pancreas, the most serious thing that can happen in gallstone disease is involvement of the common duct of the liver. "It can be fairly stated," write the authors, "that the average mortality of operations for diseases confined to the gall bladder is not greater than for appendicitis in patients of the same age and condition of health. Gallstone disease is most frequent in people of advanced years — often obese and not infrequently the victim of some degenerative lesion of vital organs. One cannot directly contrast such cases with disease of the appendix, which is by far more common in younger and more robust subjects." They state that the most common cause of death where the gall bladder alone was involved has been a descending infection of the common and hepatic ducts. They further state: "Unfortunately, the majority of common duct patients have either never had an intermission or have passed beyond it, and operation is no longer an election as to time, but a necessity, and, no matter how desperate, must be done to save life. In some cases the infection is the more prominent feature, giving typical ague symptoms. Sudden chills, with high temperature, followed by rapid decline, and a little temporary increase in jaundice and attended with moderate pain and often nausea are pathognomon. In others there is little infection, but such a degree of bile stasis in the ducts as to invite infection after any kind of operation. Some individuals are almost sure to die. Patients with extreme jaundice and subcutaneous hemorrhage will nearly always bleed to death from capillary oozing. If purpuric spots exist with jaundice, we keep the subjects under treatment until the blood will at least remain in the proper channels. Another class of cases who have in our experience all died, and about whom we are not always able to foretell the conditions previous to operation, are those patients with obstructive jaundice in whom no trace of bile is to be found in the bile passages, the common and hepatic ducts being filled with clear fluid. The liver has been put out of action. The patient, while extremely feeble, may be up and about. The jaundice is extreme, but is not necessarily accompanied by leaky blood vessels and subcutaneous hemorrhages. We have had four of these cases, and all died within four days. In two cases a little bile appeared in the drainage at the end of twenty-four hours, but in none did liver action become re-established." "In the 1,000 operations, 14.6% involved the common duct."

PERITONITIS, A BACTERIOLOGICAL STUDY.

Dudgeon and Sargent [10] in the Erasmus Wilson Lectures, have presented their work on this subject. The consideration is extremely interesting and the practical application of their work is of importance. Under the heading of treatment of acute peritonitis based upon its bacteriology, we make the following abstract:

"It will be seen that the term 'acute peritonitis' embraces a number of inflammatory diseases which differ widely in their symptoms, course and prognosis. The main factors in these, as in inflammatory diseases of the cellular tissue, are the variety and virulence of the organism which has produced the disease and upon the power of resistance which the individual possesses against it. Unfortunately there is no opportunity of ascertaining what this organism is, in any given case, until after the operation, so that we can only act upon the knowledge of what are the organisms most frequently present in any given class of cases. In gastric and duodenal perforations, in intraperitoneal hemorrhage, and in pelvic inflammations the organisms are, in the great majority of cases, of a mild type. In intestinal necrosis, on the other hand, it is the virulent colon bacillus which is by far the most common organism. The streptococcus pyogenes and the bacillus pyocyaneus are so uncommon and so uniformly fatal, whatever the treatment adopted, that it would be wise to treat all cases of peritonitis arising from intestinal necrosis as cases of colon bacillus peritonitis. . . . From what we have seen of the bacteriology of the peritoneum around an inflamed appendix it is impossible to believe that in all cases of appendicitis which subside without operation the peritoneum is sterile. . . . But such terminations are not events to be reckoned upon, for at the beginning of an attack we can only conjecture what the bacterial infection may be and certainly none can foretell the result. The earlier the operation is undertaken, therefore, the less likely is the peritoneal infection to reach a desperate stage. There are few at the present day who do not accept this view, but there is still a wide difference of opinion regarding the extent of the operation which should be performed. While there are those who advocate the most extreme measures of washing assisted by evisceration there are others, notably J. Murphy, who do not employ such drastic procedures. We are of opinion that the extent of the operation required depends upon the bacteriology of the case.

[10] Lancet, Feb. 25, 1905, p. 473; March 4, p. 548; March 11, p. 617.

"In streptococcic peritonitis, which is the most acute and fatal form that we know, it is doubtful whether any surgical procedure offers a prospect of success, but if there is any chance it must lie in the most thorough possible washing. At least this treatment can do but little harm, for the infective exudate is carried with such rapidity over the peritoneal surface that there is little risk of spreading it over an unaffected area, whilst the phagocytes, which often appear to be powerless against this virulent infection, may be washed away without robbing the patient of what in other forms of peritonitis usually constitute his chief line of defence. Peritonitis due to the bacillus pyocyaneus is of very little less virulence than streptococcic, but it is of rare occurrence and is impossible to detect at the time of operation. In this form, as in the other, the same line of treatment would offer the only possible chance of success, if indeed recovery from this infection is possible. In the vast majority of cases, however, it is the colon bacillus which is the chief infective agent, and therefore most cases of peritonitis of intestinal origin must be treated as cases of colon bacillus infection. We believe that from the observations which have already been set out, limited operations should be the rule, because of the mechanical impossibility of cleansing the peritoneum, the risk of washing away the phagocytes in the exudate beyond the area of most intense inflammation, and the danger of spreading infection over unaffected regions. In local treatment the question between local irrigation and dry sponging is of relatively small importance. We are inclined to believe, however, that dry sponging, so long as it is carried out with gentleness, is better than irrigation, because fluid poured into the abdomen is likely to carry infection beyond the area already involved. If those remote regions are already affected then no amount of washing is likely to be of much avail. In the case of mild infections, particularly those due to gastric perforations and intraperitoneal hemorrhage, the washing should be thorough, with a view to remove the foreign material present, such as the contents of the stomach or blood clot.

"The question of drainage is one upon which much has been written, but a great deal of the literature applies to the earlier days of abdominal surgery and concerns not only septic cases but all intraperitoneal operations. In mild diffuse infections, such as gastric perforations, intraperitoneal hemorrhage, and the early stages of the peritonitis of obstruction, the organisms are comparatively harmless and can be safely dealt with by the peritoneum. It is the rule in such cases where the abdomen has been closed without drainage for the wound to heal by primary union. In severe diffuse infections, on the other hand, there may be said to be more ground for drainage, although one sees many cases recover without even suppuration of the abdominal wall. . . . We are, therefore, presented with the paradox that, apart from local abscesses, the cases which it is most desirable to drain are the very ones where drainage is impossible, whilst in those where it is possible it is also unnecessary. In cases of gastric perforation where a tube has been left in the pelvis a large amount of fluid may be discharged during the first one or two days, but in cases of appendicitis treated in the same manner it is remarkable how little fluid soils the dressings. . . . In obstructed or inflamed bowel the colon bacillus attains its maximum of virulence and in all probability under these conditions is able to make its way out at points other than the primary focus. It has yet to be proved that intestinal movements play any very important part in the spread of infection over the peritoneal surface. On the other hand, intestinal paralysis spells death, for it is of vital importance that the infective material shall be eliminated from the bowel at the earliest possible moment. A dose of morphine, superadded to the toxic paresis of the bowel, may just turn the balance against recovery. It is, therefore, obvious that the teachings of bacteriology harmonize with those of clinical experience in pointing to purgatives and not to opiates as the right drugs to be given in peritonitis.

"The serum treatment of the septic diseases being in its infancy, and, so far, having shown only sporadic promise of the utility to which it may eventually attain, the little that we are able to say of its application to peritonitis can only take the form of speculation. We have endeavored to show that in the large majority of cases of acute peritonitis it is the colon bacillus which kills the patient. At any rate it is possible to ascertain, in a given case, whether this is so very rapidly by means of cover-slip preparations and even of cultures taken at the operation. We believe that, did we possess a multivalent antibacillus coli serum the mortality of peritonitis would speedily diminish. At present we know of no such serum and we can only say here that experiments are in progress with a view to produce a multivalent serum against the various virulent strains of the colon bacillus which have been isolated from our cases of peritonitis. If films of the exudate were to show streptococci we might reasonably hope that one of the most recently produced multivalent antistreptococcic sera would prove of value. But the indiscriminate use of antitoxic sera in peritonitis, without regard to the bacteriology of the individual case, is to be deprecated as being as useless as it is unscientific. At least, we have said enough to show that any hope based upon antitoxic sera must lie in the direction of a colon bacillus rather than upon a streptococcic antitoxin."

TREATMENT OF TUBERCULAR ASCITES.

Schömann [11] for the past three years has treated his cases of tubercular peritonitis with ascites in the following manner: First, the ascitic fluid is evacuated through a moderately sized canula, as much as will escape spontaneously. He then injects into the free peritoneal cavity a

[11] Zentbl. f. Chir., 1904, Bd. xxxi, s. 1409.

sterile emulsion of iodoform. (℞ Iodoform 1.0 — 5.0: Glycerine 100.00.) He begins with 1–2 c. gs. of the 1% emulsion and increases the concentration and the dose at each new injection according to the condition of the case at intervals of from four to eight days or longer. He reports the cases of seven female patients whose ages ranged from two to nineteen years and whom he regards as cured in from three to ten weeks. In two children (two and eight years old) the serous effusion did not recur after the second injection. In the case of the nineteen-year-old case, five injections were necessary, in the others three to four. In the nineteen-year-old patient the apex of the left lung was diseased. After the third injection the fever and night sweats ceased and the lung signs gradually disappeared. This patient was under treatment from July 1, 1902, to Sept. 9, 1902, and has remained well since. The other cases were not complicated. The treatment averaged three to seven weeks. The ascites has not recurred in any of these patients, but one died with convulsions one and one half years after the apparent cure. Nothing was noted after the injections except that once immediately after the injection there was a slight rise of temperature. There were no indications of iodoform poisoning.

PRESSURE STASIS (TRAUMATIC APNEA OR ASPHYXIA).

R. Lane Joynt [12] reports a case of typical pressure stasis. He suggests the name "Pressure Stasis" as it "is obviously a more suitable one as being in accordance with the pathology of the case and descriptive of it, whereas 'traumatic asphyxia' has an indefinite pulseless ring about it that might be equally well applied to a number of conditions." His paper is accompanied by an excellent colored illustration of the condition.

RECURRENT EFFUSION INTO THE KNEE-JOINT AFTER INJURY.

Sir William H. Bennett [13] delivered a lecture on this subject based on a series of 750 cases. He confines the consideration to those cases where the effusion was either recurrent or spontaneous after some injury. Frequently they were slight effusions. He divides them as follows: I. Cases (509) entirely independent of any constitutional conditions: (*a*) Cases (428) in which the symptoms of internal derangement were very precise; (*b*) cases (56) presenting no other symptoms than mere recurrence of effusion without noticeable further injury; (*c*) obvious cases (21) of loose bodies in the joint; (*d*) genu valgum (4). II. Cases (241) influenced by constitutional conditions: (*a*) Osteo-arthritis (107); (*b*) rheumatism and gout (30); (*c*) syphilis (42); (*d*) gonorrheal rheumatism (28); (*e*) malaria (18); (*f*) hemophilia (3); (*g*) quiet effusion in young people (13). The lecture is very suggestive as to a method of considering this very common condition.

[12] The Lancet, April 1, 1905, p. 856.
[13] The Lancet, Jan. 7, 1905, p. 1.

THE BRIDGING OF NERVE DEFECTS.

Charles A. Powers [14] of Denver has written an interesting paper on this subject. He has carefully analyzed the reported cases and considers the following methods of supplying defects: Grafting, flap operations, implantation, resection of bone, suture at a distance, tubulization. There were in all 56 cases. He reports a case of implantation of four inches of the great sciatic nerve of a dog into the external popliteal of a man, with a result at the end of eight years. His general conclusions are as follows: Although correction of the evils resulting from a gap in the continuity of a nerve is a matter of great importance in a given case, it hardly seems possible at this time to say definitely what form of bridging should be employed. More cases, and especially cases recorded later and better, are needed. Neuroplasty and implantation (anastomosis) are always available resources, and for the present it would seem that they should be preferred. Resection of bone may be advisable in selected cases. Transplantation of foreign grafts should be abandoned. It is hardly necessary to say that prognosis in an individual case should always be guarded, and that repeated operations may be necessary.

FRACTURE OF THE BASE OF THE SKULL.

Walton [15] has carefully considered this subject again and makes this contribution based on the clinical and pathological record of fifty cases. The article is a judicial presentation of the subject and his recapitulation is as follows:

(1) In the majority of the cases the basal fracture resulted from impact received in the horizontal plane of the skull, whether upon the frontal or the occipital region or upon the side of the head.

(2) While certain of the basal fractures extended from the vertex, there was no suggestion of the *contre-coup* of earlier writers.

(3) The line of fracture tended to enter the fossa nearest the point of impact, and to extend in the general direction in which force was applied.

(4) The lines of fracture in traversing the base tended to follow lines of least resistance, and in twenty-two of the fifty cases these lines corresponded more or less accurately to those indicated by Rawling, but the exceptions were too marked and too constant to allow the establishment of fixed rules.

(5) The sella turcica was implicated in 36% of the fractures. The petro-occipital and masto-occipital sutures furnished common lines of least resistance. Fractures extending across the base tended to run parallel to the petrous portion of the temporal bone and through the sella turcica. Certain blows on the occiput tended to cause a line of fracture extending to the jugular foramen or across the petrous bone. The portion of the petrous bone containing the auditory apparatus showed itself peculiarly liable to

[14] Annals of Surgery, Nov., 1904, p. 632.
[15] Annals of Surgery, Nov., 1904, p. 654.

fracture, more often transversely than longitudinally.

(6) In seven cases (14%) the fracture was limited to the base after vault impact in the horizontal plane. Neither Rawling's theory of transmitted force nor the theory of bursting fracture of von Wahl and others suffices alone to explain these results. The results of experiments with bodies of simpler structure would suggest that the bursting principle predominates in pure compression of the skull, and the principle of transmitted force in case of blows, while both play important parts in case of falls.

(7) The orbital foramen was implicated in 21.4% of the cases of orbital fossa fracture.

(8) Inequality and immobility of pupils, or both, furnish the most frequent and unfavorable sign of fracture of the base. In the forty-four cases in which the pupils were recorded, they were normal in only thirteen.

(9) Injury to the ciliospinal tract in its intracranial course is a more probable cause of the Hutchinson pupil and the other pupillary changes than injury to the third nerve or to the cortex, though no single lesion explains all cases.

(10) The reflexes may be lessened or lost in fracture of the base, as in any case of violent jarring of the brain. On the other hand, they may be increased even to spasticity, probably through direct pressure on the pyramidal tract as by hemorrhage. It is probable that the initial result of the impact in all cases is a tendency towards lessening or loss of the reflexes.

(11) Profuse and persistent bleeding from the ear does not suggest middle meningeal hemorrhage. No middle meningeal hemorrhage was found in the cases of profuse and persistent bleeding, and, conversely, hemorrhage from this artery occurred eight times without, and once with, only slight bleeding from the ear.

Recent Literature.

A Textbook of Legal Medicine. By Frank Winthrop Draper, A.M., M.D., Professor of Legal Medicine in Harvard University; Medical Examiner for the County of Suffolk, Massachusetts. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

Dr. Draper's Textbook of Legal Medicine is a single handy octavo volume of 573 pages, and is fully illustrated. It was prepared and published, primarily, as a help to medical students interested in legal medicine, but is adapted as well to the needs of practitioners. Toxicology and the medico-legal relations of psychiatry have been purposely omitted. We know of no one more fitted by experience than Dr. Draper to undertake the task which he set himself. This experience comprises an original careful training as a general practitioner; a service of twenty-eight years as a medical examiner for the city of Boston, during which time over eight thousand deaths under suspicion of violence came under his observation, and teaching as professor of legal medicine in the medical school of Harvard University. In addition to this large experience, Dr. Draper has rare capacity for putting his knowledge into uncommonly clear and terse English.

As a result of these qualifications, its author has produced a book which, within the limitations he set himself and for the purposes he designed it, is thoroughly excellent; we know of nothing quite so satisfactory and can unhesitatingly recommend it.

The Surgical Diseases of the Genito-Urinary Tract. Venereal and Sexual Diseases. A Textbook for Students and Practitioners. By G. Frank Lydston, M.D., Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Medical Department of the State University of Illinois, Surgeon-in-Chief to the Genito-Urinary Department of the West-Side Dispensary, Surgeon to St. Mary's and Samaritan Hospitals, etc. Revised edition. Illustrated with 233 engravings and 7 color plates. Philadelphia: F. A. Davis Company. 1904.

With the number of excellent works that are already available for the student and the practitioner in this branch of surgery, we have the right to be somewhat exacting as to the qualities of a newcomer in the field, and to ask a rather high standard of excellence or some distinctly valuable addition to what already exists, before such a work may properly be welcomed or expect to avoid frank criticism if it falls below such requirements.

While there are some good features and much information in the volume before us, we are obliged to say that it does not appear to us to rank with the best works of its class.

With reference to the general features of the book, we may note the adherence to a frequent and, as it appears to us, unfortunate custom of combining into one volume the subjects of genito-urinary surgery, venereal diseases, syphilis and functional sexual disorders. Four hundred and thirteen of the one thousand pages comprising the volume, are devoted to the last three of the above headings, the remainder to the first. This combination is usually made because of the desire of the publishers to turn out a book that shall have a large sale, and to their assertion that the sales will be much larger than if either the one or the other of the above divisions of the subjects is published alone, but it is almost inevitable that they all lose, when thrown together, much that it is desirable to have included in each.

But few of the illustrations are good; some of them have a decidedly cheap character. This is owing to the poor quality of the work rather than to the selection of the figures by the author which, in most cases, is well made.

The chapter on stricture is perhaps the best in the book. The writer is an adherent of the views of Otis and supports them ably. We note in the course of this chapter a somewhat singular statement with regard to the compressor urethræ muscle made when dealing with the subject of urethral spasms, as follows:

"A certain amount of spasm produced by contraction of the circular fibers, compressor urethræ muscle, *may occur anywhere in the canal.* This explains in part obstruction to instrumentation *in penile* strictures of large caliber." The italics we use to emphasize the misapplied anatomy of the above quotation. Inasmuch as the compressor urethræ muscle has nothing to do with the penile urethra and is limited to the membranous portion it is difficult to understand what is meant by the writer in the lines quoted.

As was said at the beginning of this notice there is much information contained in the work, but we cannot say that it has anything of special value that has not been as well or better presented by a number of the well-known textbooks of the day, and the lack of finish, absence of statistical detail or comprehensive reviews of the different subjects, makes the work as a whole fall into the line of those of the second class rather than those of the first.

Manual of Intragastric Technique: Practical Lessons in the Use of Apparatus for the Diagnosis and Treatment of Diseases of the Stomach. By GEORGE HERSCHELL, M.D., London, Fellow of the Royal Medico-Chirurgical Society. London: Henry J. Glaisher, 57, Wigmore Street, Cavendish Square, W. W. T. Keener & Co., American Agents. 1903.

This book of 166 pages gives in great detail the various methods for the examination of the stomach. Fortunately for both practitioner and patient the tendency of the last few years has been toward simplicity in this direction. To those, however, who desire to employ the more accurate and elaborate mechanical aids for diagnosis in gastric diseases this work may be recommended.

Gynecology: Medical and Surgical Outlines for Students and Practitioners. By HENRY J. GARRIGUES, A.M., M.D., Gynecologist to St. Mark's Hospital in New York City; Consulting Obstetric Surgeon to the New York Maternity Hospital; formerly Professor of Gynecology and Obstetrics in the School for Clinical Medicine, and Professor of Obstetrics in the Post-Graduate School and Hospital, etc. With 343 illustrations; 460 pages. Philadelphia and London: J. B. Lippincott Company. 1905.

The general plan of this book is the same as that of the author's textbook of the diseases of women, to which the reader is referred for information about anatomy, embryology, rare diseases, or unusual operations. The preface states that it is an outline of the whole system of gynecology, calculated to be a guide for beginners. The book is written in the author's customary clear style, and the Lippincott Company has produced a well illustrated and handsome volume.

The student would, however, have derived more benefit from a fourth edition of the textbook, brought up to date, than from this work, which is neither concise enough for a quiz compend nor full enough for a complete treatise.

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ANNUAL REPORT OF THE STATE BOARD OF INSANITY.

THE sixth annual report of the State Board of Insanity for the Commonwealth of Massachusetts is a public document of more than usual interest this year in that it discusses certain important problems which the state must meet in relation to the care of the insane. As is no doubt generally known, reforms have been taking place during the past few years with relation to the classification of the mentally deficient with results which are now becoming apparent. The State Care Act went into effect Jan. 1, 1904, which provided that all dependent persons under commitment as insane should be supported at the expense of the state, and that insane persons in city and town almshouses should be removed to state institutions so far as they could there receive accommodation. As a result of this legislation approximately 6,750 municipal charges have been transferred to the support of the Commonwealth. The obvious improvement in classification which these figures imply needs no detailed comment. Certain cases which were still being kept at almshouses under the jurisdiction of the State Board of Insanity when the report was written have no doubt been transferred as opportunity has offered. It was expected that the state care of the insane would be completely established prior to Jan. 1, 1905.

The yearly increase in the insane for the year under consideration was 733 and, omitting those coming from almshouses under the new law, the actual increase in public institutions, figured on the basis of former years, was only 300, very considerably fewer than for a number of years past. As usual, however, additional accommo-

dations are urgently demanded. Beds in corridors and day rooms continue, and the Board therefore recommends that additional provision be made for 500 patients, which will cover the annual increase and will prevent the present overcrowding.

Regarding the matter of voluntary admissions, the Board urges the desirability of preserving as far as possible the voluntary relation of patients to the hospital in which they are treated. The obstacles to progress in this direction appear to be the strict construction of the existing law which imposes too great limitation on the class of patients eligible for such consideration and the fact that no provision is made for the support of indigent voluntary patients. It is evident that a reform in this direction is desirable.

The portion of the report, however, to which readers will turn with the greatest interest is that relating to the care and treatment of persons with mental disease prior to their commitment as insane. It will be remembered that early in the year 1904 the State Board sent circulars to some three thousand physicians in the state requesting experience and opinions regarding the preliminary treatment of the insane, or those likely to become so, with special reference to the part which might be taken in such treatment by the general hospitals. To this appeal rather more than a third of those addressed responded, and naturally a wide diversity of opinion was expressed, together with some misunderstanding of the purport of the inquiry. A general result of the investigation was that in the judgment of the physicians who expressed an opinion nearly 30% of all mental cases observed, and upwards of 21% of their patients committed as insane, were suitable for treatment in special wards connected with general hospitals. The fear of converting a general hospital into one for the insane is, of course, purely chimerical and not in the least in the design of those advocating more liberal provision for the incipient mental cases. That something should be done in the matter is perfectly evident, and we have previously in a general way expressed our opinion upon this point. If the existing general hospitals deem it unwise to extend their functions to the observation of incipient mental cases, emergency stations should be provided under general hospital auspices where patients could be adequately observed by properly qualified physicians before a final decision as to their commitment be made. This portion of the report is well worth the careful perusal of those interested in the more rational and liberal policy of the treatment of the insane. It is undoubtedly well to agitate the question and discuss it from various points of view before action in the matter be taken. That results of importance will ultimately come from such agitation is not to be questioned.

ANTIQUITY OF THE MOSQUITO-MALARIA THEORY.

It is a slight blow to one's pride to find that recent discoveries have been long before recognized and forgotten. This experience scientific men are constantly having in greater or less degree, and if certain statements recently made are to be accepted, it appears that the prevailing theory regarding the etiology of malaria was distinctly foreshadowed more than a thousand years ago. Recently, as quoted in the London *Lancet*, Sir H. Arthur Blake, in the course of an address at the annual meeting of the Ceylon Branch of the Royal Asiatic Society, discussed the antiquity of knowledge relating to the relationship between malaria and mosquitoes. He drew attention to the fact that not long since the government instituted an inquiry into the prevalence of malarial fever in a part of Ceylon, and that during this inquiry it appeared that the possibility of the propagation of malarial fever by the mosquito was mentioned in ancient manuscripts. Further investigations showed that in the medical works of Caraka Susruta, and other Cingalese writers, mention of sixty-seven varieties of mosquitoes was made, and also that four varieties of malarial fever were caused by the bite of these mosquitoes. The books to which references were made were written in the sixth century, or about fourteen hundred years ago. The authorities, which were written in Sanskrit, were offered for the benefit of the skeptical with an interpreter.

A correspondent, reverting to this address of Sir H. Arthur Blake, adds to the discussion an entertaining passage from Herodotus in which certain precautions against the mosquito are detailed. He further affirms that, so far as he is able to learn, no allusion is contained in any Semitic writings which could be regarded as anticipating the modern theories, although statements regarding insect pests are frequent. These references in ancient literature to modern ideas are of more than passing interest, but it is a long step between the recognition of the possible relationship observed as an empirical fact between mosquitoes and malaria and the demon-

stration of the manner in which the infection actually takes place. Naturally, the significance of the modern discovery lies in the latter fact, and in general, this distinction is observable between the so-called discoveries of the ancients and our own.

A CRUSADE FOR PURE MILK.

THE Massachusetts State Board of Health has recently entered upon a work which must meet with the unqualified approval of citizens at large as well as of the medical profession. Beginning March 1, the State Board of Health appointed a veterinary surgeon to take critical notes on the condition of dairies in this state. Under this system, up to May 1, nearly eight hundred dairies have been inspected, in which were kept nearly ten thousand cows. The inspection consists in an examination of the general condition of the cows with special reference to tuberculosis, garget, and those having purulent discharges from retained membranes. Notes are also taken as to the cleanliness of the cows, and to the methods of bedding. As has been generally pointed out in the daily press, conditions which call for the most radical improvement have been found. Many of the cows, for example, are bedded in horse manure, and are milked without cleaning. In some instances cows are kept in windowless barns, and also in unlighted and unventilated cellars. In other cases they have been found, together with pigs, sheep and hens, in barn cellars which are in a condition of the utmost filth.

The cases with tuberculosis are reported to Dr. Austin Peters, chief of the Cattle Bureau, who takes measures in accordance with the state of the disease. The examination of the udders of certain cows has shown the presence of pus and tubercle bacilli. A further evil, which becomes of increasing importance as the summer approaches, is the objectionable method of handling and storing milk. In general, the supply of ice is altogether insufficient, and no proper means are taken of preserving the milk. In order that this evil may be corrected as far as possible, records are now being made of the cooling of milk, the time it is kept, and the methods of transportation, so that in time the State Board of Health will be in possession of many important facts relating to the milk from the time of its collection to its final distribution.

The chief defects as at present observed are the extreme overcrowding of the cows, the presence of filth in the neighborhood of the animals, the lack of cleanliness of the animals themselves, and the absence of proper facilities for cooling milk. All these matters are now receiving the careful attention of the Board of Health, and we may rest assured that reforms of a radical sort will be instituted. It is furthermore a gratification to note that several of the large contractors are in entire sympathy with the Board of Health's investigation, and are vigorously supporting the movement by declining to accept milk which does not comply with the hygienic requirements of the Board.

When we consider that epidemic diarrhea of the summer months is undoubtedly chiefly due to contaminated milk, and when further it is realized how easily milk may be contaminated, even when a certain amount of care is taken, it becomes evident that the conditions which are now being disclosed are such as to arouse the interest and indignation of the entire community. It has been shown that 90% of the children dying of intestinal disturbances are bottle-fed, a further illustration of the necessity for prompt action. If sufficient pressure be brought to bear upon the milk producers, there can be little doubt that the situation may be altered almost immediately for the better, and that one of the greatest menaces to the health of the younger portion of the community may be practically eliminated. The State Board of Health should receive the heartiest moral co-operation from all right-minded citizens in its crusade.

MEDICAL NOTES.

AN AGED BRIDEGROOM. — One of the most mature bridegrooms on record is George Schmidt of Newark, N. J., who at the age of ninety-five recently married a widow of fifty-seven. He is blessed with children, grandchildren, and great-grandchildren, and is stated to have never known a day's illness.

STATISTICS FROM THE PHILIPPINES. — According to a recent report of the Board of Health for the Philippine Islands, there are 3,806 lepers in the archipelago, the number of males being almost twice that of the females. The number of insane is 3,930, with small difference between the sexes. It is suggestive that of 31 deaths which occurred in a certain prison 16 were caused by tuberculosis.

MEMORIAL TO DR. ALBERT B. CRAIG. — It has been suggested that a suitable memorial, expressing professional feeling, be made for Dr. Albert B. Craig of Philadelphia, who, it will be

remembered, died this winter of cerebrospinal meningitis under peculiarly sad circumstances. It is proposed that the memorial take the form of an endowment fund for the rearing and education of his posthumous child. *American Medicine* announces that it will receive contributions to this end. It is also understood that the trustees of Jefferson College and Hospital are proposing to place a mural tablet in the new hospital commemorative of Dr. Craig's work and death.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 10, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 35, typhoid fever 10, measles 14, tuberculosis 41, smallpox 0.

The death-rate of the reported deaths for the week ending May 10, 1905, was 19.61.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 6, 1905, was 233, against 239 the corresponding week of last year, showing a decrease of 6 deaths, and making the death-rate for the week 19.78. Of this number 144 were males and 89 were females; 228 were white and 5 colored; 127 were born in the United States, 98 in foreign countries, and 8 unknown; 45 were of American parentage, 155 of foreign parentage, and 33 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 30 cases and 3 deaths; scarlatina, 22 cases and 4 deaths; typhoid fever, 10 cases and 3 deaths; measles, 17 cases and no deaths; tuberculosis, 33 cases and 25 deaths; smallpox, no cases and 1 death. The deaths from pneumonia were 34, whooping cough, none, heart disease 23, bronchitis 5, and marasmus 4. There were 15 deaths from violent causes. The number of children who died under one year was 31; the number under five years, 50. The number of persons who died over sixty years of age was 57. The deaths in public institutions were 85.

During the week there were 8 cases reported of cerebrospinal meningitis and 4 deaths.

Relief Hospital for East Boston. — The Boston Common Council has concurred with the Aldermen in adopting the legislative act establishing a relief hospital at East Boston.

Nurses in Public Schools. — At a meeting of the Twentieth Century Club of Boston, held this week, the subject under discussion was the employment of nurses in public schools. Dr. Samuel H. Durgin, Chairman of the Boston Board of Health, who has been instrumental in promoting medical inspection in the schools, spoke in favor of the employment of nurses on the ground that contagious diseases might thereby in great measure be prevented. Dr. Ernest J. Lederle, at one time Health Commissioner of New York, spoke of the experience in that city. The preliminary dissatisfaction which was encouraged by politicians has finally resulted in a very much improved school sanitation, with a return of 98% of the children who were at first excluded for hygienic reasons.

NEW YORK.

President of the American Therapeutic Society. — At the annual meeting of the American Therapeutic Society, which was held in Philadelphia on May 4, 5, and 6, Dr. Carl Beck was elected president for the ensuing year.

School for Crippled Children. — Mr. and Mrs. Charles Thorley, in memory of their deceased daughter, Lucy Thorley Lyons, have purchased and presented to the Free Industrial School for Crippled Children a large house, with spacious grounds, beautifully situated at Claverack on the Hudson about three miles from the city of Hudson, and it is purposed to care for fifty children there during the entire summer.

Graduation of Nurses. — At the graduating exercises on April 25, Prof. James N. West presented diplomas to twenty pupils of the Margaret Fahnestoch Training School for Nurses of the New York Post-Graduate Hospital. There were nine graduates at the semi-annual graduation of nurses from the training school of St. Mark's Hospital on April 29, and on this occasion Dr. Carl Beck, the president of the hospital, announced that for the first time in its history the hospital had this year been able to meet all the expenses of its maintenance.

New Branch of American National Red Cross Society. — In accordance with the provisions of the new charter of the recently reorganized American National Red Cross Society, which, it is believed, will secure increased public confidence and result in increased efficiency and usefulness, a New York state branch of the society has been formed. The organization was effected at a meeting held at the residence of Whitelaw Reid on May 3, when Col. William Cary Sanger, ex-Assistant Secretary of War, was elected president, the Hon. Elihu Root vice-

president, Mrs. William K. Draper secretary, and Jacob H. Schiff treasurer. On this occasion the principal address was made by Admiral Van Reypen, ex-surgeon-general of the navy, who is now the president of the national society. It is contemplated organizing under the state society branches in all the large cities of the states.

Statistics on Drunkenness. — In behalf of a bill now before the legislature some statistics have been presented in regard to drunkenness in the state which are rather surprising. It appears that the total arrests for intoxication in one year were more than 33,000. The largest number of these in any of the counties was in Kings County, comprising the Borough of Brooklyn, "the city of churches," where they amounted to 10,003. New York County is second on the list, with 7,206, and Westchester County third, with 1,006. In Erie County, embracing the city of Buffalo, which has the third largest population in the state there were only 106 arrests. The bill referred to provides for the medical treatment of all persons arrested for drunkenness by a certain institution for alcoholics, and that 5% of the excise money of the states be used for the payment of this. The proposed legislation, it is believed, has no chance of going through.

Time to Think. — On the evening of May 3 Dr. Osler made an address at the annual dinner of the New York Graduates Society of McGill University, which was presided over by Dr. H. N. Vineberg of New York. In the course of his remarks he said: "Much of the best and most important and helpful university work is done by those who are often called 'university loafers,' men who but seldom meet the students and who are but little known by them. . . . What we want most of all in our universities is not men to teach, but men to think. You cannot think well and teach hard at the same time. A man who works six or eight hours a day, teaching and lecturing, can do no great amount of original thinking. It would be well if our American universities should follow the example set by such institutions in Germany and England by not working their professors quite so hard, and instead giving them a little more time to think."

Dinner in Honor of Dr. William Osler. — The dinner in honor of Dr. William Osler at the Waldorf-Astoria on May 2 was an extraordinary and memorable occasion, being attended by more than five hundred physicians, representing every part of this country and Canada, and by some from abroad. Dr. James Tyson of Philadelphia presided, and the formal toasts were responded to as follows: "Dr. Osler in Montreal — Student and Teacher," by Dr. Francis J. Shepherd of Montreal; "Dr. Osler in Philadelphia — Teacher and Clinician," by Dr. James C. Wilson of Philadelphia; "Dr. Osler in Baltimore — Teacher and Consultant," by Dr. William H. Welch of Johns Hopkins University; "Dr. Osler — the Author and Physician," by Dr. A. Jacobi of New York. The toasts were followed by the presentation to the guest of the evening of Cicero, "De Senectute" by Dr. S. Weir Mitchell of Philadelphia, who excited a storm of laughter and applause with the remark, "Cicero must be regarded as an anticipatory plagiarist, for he said in one place, 'It is desirable for a man to expire at the right time.'" The copy of the "De Senectute" was a translation by James Long which was printed by Benjamin Franklin at Philadelphia in 1744. At the conclusion of Dr. Mitchell's address, Dr. Osler made his response, and during the evening much amusement was caused by the singing of a song with the following title: "Our Regius Professor. Composed and Sung by the Saint Johns Hopkins Gastric Quartette at the Dinner to Dr. Osler, The Walled-off Castoria, New York, May 2, 1905."

Miscellany.

COPIOUS WATER-DRINKING AND POLYURIA IN TYPHOID FEVER.

During the summer months of 1903, typhoid fever being unusually prevalent in Cleveland, Ohio, an attempt was made by Drs. E. W. Cushing and T. W. Clarke at the Lakeside Hospital, to give much larger quantities than usual of water to drink to the fever patients. It was found that from a gallon to a gallon and a half or even more could easily be taken. Their experience and conclusions are summarized[1] as follows:

(1) Large quantities of water internally, a gallon or more in twenty-four hours, may easily be taken by typhoid fever patients, if administered in small quantities at frequent and definite intervals.

(2) A copious elimination of watery urine at once follows, the degree of polyuria, day by day, closely corresponding to the quantity of fluid ingested.

(3) Patients are more comfortable by this mode of treatment, and toxic, nervous symptoms are lessened.

(4) The mortality, as well as the severity, of typhoid fever, seems to be still further diminished by this method of hydrotherapy employed as an accessory to the cool-bath treatment of the disease.

[1] American Journal Medical Sciences, February, 1905.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 29, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Cerebro-spinal meningitis.
New York	3,908,644	1,636	509	37.43	18.09	2.99	.73	5.31
Chicago	1,960,750	527	182	30.54	14.05	1.14	.18	—
Philadelphia	1,407,988	552	115	21.92	13.94	.72	—	.18
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	543,225	212	69	35.00	17.45	.94	—	.47
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,408	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,980	—	—	—	—	—	—	—
Washington	320,776	—	—	—	—	—	—	—
Providence	196,744	64	14	21.87	20.30	6.24	—	4.68
Boston	617,980	210	46	23.33	16.19	.95	.95	3.81
Worcester	136,925	49	18	12.24	12.24	—	—	6.12
Fall River	119,349	28	11	25.00	—	3.57	—	—
Lowell	104,402	43	7	25.57	13.95	—	2.32	9.30
Cambridge	100,998	25	4	16.00	8.00	—	—	—
Lynn	73,875	23	6	27.27	18.18	4.54	—	13.63
Lawrence	72,348	22	6	18.18	13.63	—	—	—
Springfield	72,020	20	5	10.00	15.00	—	—	—
Somerville	70,413	22	4	18.18	18.18	—	—	4.54
New Bedford	69,363	19	6	21.05	10.52	—	—	5.26
Holyoke	50,388	19	11	26.31	26.31	—	5.26	5.26
Brockton	46,601	9	6	22.22	—	—	—	—
Newton	39,310	7	1	14.30	—	—	—	—
Haverhill	39,061	12	1	25.00	25.00	—	—	—
Malden	37,393	10	—	20.00	—	—	—	—
Salem	37,188	9	1	22.22	—	11.11	—	11.11
Chelsea	36,499	11	1	18.18	9.09	—	—	9.09
Fitchburg	36,335	14	7	—	21.42	—	—	—
Taunton	34,577	—	—	—	—	—	—	—
Everett	30,209	18	6	38.88	—	11.11	—	—
North Adams	29,201	7	2	14.30	—	—	—	—
Quincy	26,798	8	3	—	25.00	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	7	1	—	14.30	—	—	—
Brookline	23,576	7	1	14.30	—	14.30	—	—
Pittsfield	22,570	13	2	30.80	15.40	—	—	7.70
Medford	21,956	6	3	33.33	16.67	—	—	16.67
Chicopee	21,692	7	2	—	42.90	—	—	—
Northampton	20,314	6	0	—	—	—	—	—
Beverly	15,807	7	—	28.60	—	—	—	14.30
Leominster	15,711	3	—	—	66.67	—	—	—
Clinton	15,694	5	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	2	—	—	—	—	—	—
Hyde Park	14,500	4	1	25.00	—	—	—	25.00
Newburyport	14,478	3	0	33.33	—	—	—	—
Woburn	13,315	5	—	40.00	40.00	—	—	—
Melrose	13,819	6	1	33.33	16.67	—	—	—
Westfield	13,809	7	—	14.30	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	3	0	—	33.33	—	—	—
Revere	13,609	3	1	—	—	—	—	—
Framingham	13,974	6	—	16.67	16.67	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,324	5	1	—	—	—	—	—
Southbridge	11,716	3	2	33.33	—	—	—	—
Watertown	11,575	4	0	25.00	25.00	—	—	—
Weymouth	11,350	2	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,689; under five years of age, 1,050; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 939; acute lung diseases 590, consumption 484, scarlet fever 19, whooping cough 51, cerebrospinal meningitis 119, smallpox 0, erysipelas 17, puerperal fever 13, measles 32, typhoid fever 36, diarrheal diseases 91, diphtheria and croup 73.

From whooping cough, New York 17, Chicago 27, Philadelphia 4, Boston, Fall River and New Bedford 1 each. From scarlet fever, New York 13, Baltimore 1, Providence 1, Springfield, Brockton and Everett and Pittsfield 1 each. From cerebrospinal meningitis, New York 87, Philadelphia 1, Baltimore 1, Providence 3, Boston 8, Lowell 4, Worcester 3, Lynn 3, New Bedford, Somerville, Holyoke, Salem, Chelsea, Pittsfield, Medford, Beverly and Hyde Park 1 each. From erysipelas, New York 15, Chicago 1, Boston 2, Lowell 1, Holyoke 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending April 22, 1905, the death-rate was 15.6. Deaths reported 4,684; acute diseases of the respiratory organs (London) 119, whooping cough 100, diphtheria 38, measles 203, smallpox 3, scarlet fever 50.

The death-rate ranged from 6.7 in Kings Norton to 29.8 in Merthyr Tydfil; London 14.9, West Ham 12.2, Brighton 12.3, Southampton 19.1, Plymouth 15.3, Bristol 13.7, Birmingham 18.3, Leicester 13.3, Nottingham 17.8, Birkenhead 15.3, Liverpool 18.9, Wigan 24.1, Bolton 10.5, Manchester 18.7, Salford 14.4, Halifax 11.5, Bradford 13.8, Leeds 16.7, Hull 21.0, Sheffield 19.4, Newcastle-on-Tyne 17.5, Cardiff 13.0, Rhondda 20.0.

METEOROLOGICAL RECORD.

For the week ending April 29, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 23	30.32	46	55	38	85	55	70	N W	N	10	12	C.	C.	0
M.. 24	30.10	50	63	38	79	56	68	W	S W	10	18	C.	C.	0
T.. 25	29.92	63	64	50	68	48	58	N W	W	16	12	C.	C.	0
W.. 26	29.68	62	74	50	64	61	62	S W	S W	10	10	O.	O.	T.
T.. 27	29.65	52	60	44	83	82	82	N E	N E	10	9	O.	C.	0
F.. 28	29.96	44	48	40	93	99	92	N E	E	7	6	O.	C.	0
S.. 29	29.86	44	50	37	92	93	92	E	E	8	6	O.	O.	.01
Mean.	29.93		59	41			75							.01

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 6, 1905.

H. A. DUNN, assistant surgeon. Ordered to the "Terror," May 1.

E. O. HUNTINGTON, surgeon. Detached from the Naval and Marine Recruiting Stations, Chicago, Ill., and ordered to the "Albatross."

J. C. THOMPSON, past assistant surgeon. Detached from the "Albatross," and ordered home to wait orders.

J. M. MOORE, past assistant surgeon. Ordered to duty at the Naval and Marine Recruiting Stations, Chicago, Ill.

W. M. WHEELER, surgeon. Ordered to the "Cleveland," sailing from New York, N. Y., about May 10.

R. C. HOLCOMB, past assistant surgeon. Detached from the "Cleveland," and ordered to the Naval Station, Culebra, W. I.

G. L. ANGENY, past assistant surgeon. Detached from the Naval Station, Culebra, W. I., and ordered home to await orders.

A. HAMMER, pharmacist. Detached from the Navy Yard, New York, N. Y., and ordered to the Army General Hospital, Fort Bayard, N. M., for treatment.

J. M. BRISTER, past assistant surgeon. Detached from the Naval Hospital, Philadelphia, Pa., and ordered to the "Atlanta."

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY, SECTION ON LARYNGOLOGY AND RHINOLOGY. — This Society will hold its regular meeting on Thursday, May 18, 1905, at Hotel Nottingham, 7.30 P.M. Paper: "Otology in Its Relation to General Medicine," by Dr. Clarence John Blake.

DR. BLANCHE A. DENIG, *Secretary.*

DR. N. LOUISE LAWRENCE, *Chairman.*

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — There will be a meeting of the Boston Society for Medical Improvement in John Ware Hall, Medical Library, on Monday, May 15, at 8.15 P.M. Dr. J. Collins Warren will speak on Epochs in the History of Medicine. Mr. Albert M. Lythgoe, by invitation, will speak on the condition of Preservation of Egyptian Burials at different periods. Both Dr. Warren's and Mr. Lythgoe's remarks will be illustrated with slides. All members of the profession are invited to be present.

A. K. STONE, M.D., *Secretary.*

RECENT DEATH.

DR. J. HOWARD PUGH, the oldest practising physician and one of the most prominent citizens of Burlington, N. J., died on April 30. He was born in Chester County, Pa., in 1827, and was graduated from the medical department of the University of Pennsylvania in 1852. With the exception of two years

immediately after graduating, which were spent in Bristol, Pa., he had always practised in Burlington. He was president of the Burlington County Medical Society, the Burlington Library Association and several financial institutions, and he also served for a time as member of Congress from his district.

BOOKS AND PAMPHLETS RECEIVED.

Preliminary Report on the Presence of an Immune Body in the Blood of Mice Spontaneously Recovered from Cancer (Adeno-Carcinoma, Jensen) and the Effect of this Immune Serum upon Growing Tumors in Mice Infected with the Same Material. By Harvey R. Gaylord, M.D., G. H. A. Clowes, Ph.D., and F. W. Baeslack, B.A. Reprint.

Knee Ankylosis. By De Forest Willard, M.D. Reprint.

Old Unreduced Dislocations. By De Forest Willard, M.D. Reprint.

Twenty-ninth Annual Report of the New York State Reformatory at Elmira. For the Fiscal Year ending Sept. 30, 1904.

Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital. No. 2, issued January, 1905.

Annual Report of the Lynn Hospital. For the Year 1904.

Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps during the Spanish War of 1898. By Walter Reed, Major and Surgeon, U. S. Army, Victor C. Vaughan, Major and Division Surgeon, U. S. Volunteers, and Edward O. Shakespeare, Major and Brigade Surgeon, U. S. Volunteers. Vols. I and II. Washington. 1904.

Prosthetic Surgery, with Report of a Case. By Flavel B. Tiffany, A.M., M.D. Illustrated. Reprint.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikroorganismen umfassend Bacterien, Pilze und Protozoën unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben. Von Dr. med. P. von Baumgarten, und Dr. med. F. Tangl. Achtzehnter Jahrgang. 1902. Leipzig: Verlag von S. Hirzel. 1905.

The Intestinal Catarrhs. Being a Clinical Study of Colitis, Appendicitis and their Allies, with a special new Section on Sprue. By Edward Blake, M.D. Second Edition. Chicago: W. T. Keener & Co. 1905.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. March 1, 1905. Philadelphia and New York: Lea Brothers & Co.

Thirty-fourth Annual Report of the Trustees of the City Hospital of City of Worcester for Year ending November 30, 1904.

The Urine and Feces in Diagnosis. By Otto Hensel, Ph. G., M.D., and Richard Weil, A.M., M.D., in collaboration with Smith Ely Jelliffe, M.D., Ph. D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1905.

Report of the Connecticut Hospital for the Insane for the two years ended September 30, 1904.

University of California Publications. Physiology. On an Improved Method of Artificial Parthenogenesis. By Jacques Loeb.

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Original Articles.

THE SATISFACTORY PROSTATECTOMY.*

BY BENJAMIN TENNEY, M.D., BOSTON,
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In the recent mass of literature on the operative treatment of prostatic hypertrophy the surgeon's point of view has been given great prominence. In a general way, this is right, because the surgeon sees large numbers of patients and can estimate results in a mass, so to speak. There is a side of the question which must not be lost sight of, and that is what an individual patient may expect.

The surgeon may feel honestly that all cases of prostatic hypertrophy sufficient to interfere with normal urination, should be promptly operated upon, knowing as he does the unpleasant termination of many cases where nature and the catheter combine to make the patient miserable and to shorten his life. On the other hand, the patient has the right to ask the surgeon what he can offer him in the way of improved condition by means of the operation, and the question of mortality percentage is not the only one to be considered.

If a patient exchanges a tight bladder which can be emptied by a catheter at more or less frequent intervals and with more or less pain, for a bladder which is continually leaking, either through the urethra or through a fistula, it is a choice between evils. If he exchanges a bladder which requires a catheter every hour or two for a condition which still leaves him in pain, and with the necessity of urinating with equal frequency, it is a choice between inconveniences, and if for the sake of free passage of urine the sexual function is lost, there may sometimes be a question in the patient's mind whether it is worth while.

Statistics of the present day include several hundred operations. The careful lists made out by Watson, by Proust and by Escat, show in a painstaking and accurate fashion the relative mortality of the different operative procedures, but the number of operators who present careful, detailed post-operative results is smaller than could be desired.

The patient has a right to ask how long he will be confined to his bed, how long he must stay in hospital, how much suffering he must undergo, and whether at the end of his treatment he will have a bladder which will allow him to take up his usual occupations, to sleep without disturbance, and to resume such pleasant habits as he may have formed before the operation.

At first glance the problem seems simple. It is only to remove an embarrassing amount of glandular tissue which is not difficult of access, but the perfection of the result depends on the removal of this tissue without damage to the urinary or sexual functions. If a normal bladder containing urine be removed with the membranous urethra soon after death, and the bladder squeezed as one would squeeze a rubber bulb, it will usually be found that moderate pressure will not empty it of its contents unless there be tension on the ureters. If the same bladder be held so that the urethral opening is lowest and there be a slight upward tension on the ureters urine will flow freely from the bladder without pressure. This is due to the fact that some of the muscular fibers of the ureters are continued downwards on the lateral boundaries of the trigone into the urethra, and it requires a slight tension of these fibers to open the urethral orifice.

Possibly, indeed probably, most of the urine can be forced from the bladder after these fibers have been destroyed by any form of prostatectomy, but they are nevertheless of sufficient importance to be preserved if possible.

Again, there is normally some glandular tissue behind the urethra and above the ejaculatory ducts which is continuous with the prostatic tissue in the two lateral lobes. This central portion is not very adherent to the urethra or to the tissue which separates it from the seminal vesicles. Unless greatly hypertrophied, it can be pulled either way, after separation, without damage to the urethra or to the ejaculatory ducts, but if it is pulled straight upwards the muscular fibers from the ureters will be ruptured and if pulled straight down the ejaculatory ducts may be injured.

The third point is the one most frequently spoken of, and relates to the proper separation between the hypertrophied mass and the mesh of blood vessels which surrounds the prostate. The hemorrhage depends on finding this plane of cleavage successfully. Any operation which will completely remove hypertrophies which prevent proper dilatation of the urethra, and will at the same time leave these other structures intact, ought to be followed by a satisfactory result provided the nerve supply to the sphincter muscles has been left undisturbed.

Leaving out of account that diminishing number of cases which best receive palliative treatment by the Bottini cautery knife, there are two ways of approaching these hypertrophies; one through the perineum followed by enucleation of the hypertrophy from behind, or from within the prostatic urethra. The other is through the bladder wall, followed by enucleation of the hypertrophied mass, either as a single structure which includes the prostatic urethral mucous membrane or in separate masses leaving behind as much prostatic mucous membrane as possible.

Statistics to-day show that the perineal approach has been followed by a lower mortality than the suprapubic, but the difference in mortality is due not, as I was taught, to sepsis, but, according to Watson's figures,[1] to shock and post-operative pulmonary complications. If these two factors can be even partially eliminated, the mortality rate of the suprapubic operation ought to be no higher if as high as that of the perineal.

*Read before the Lister Club of Portland, Me., Jan. 19, 1905.

[1] Annals of Surgery, June, 1904.

Murphy[2] of Chicago has contributed a very valuable paper, giving in detail the post-operative results of forty-eight cases of perineal prostatectomy done in the past four years. These show an average hospital stay of forty days; shortest eighteen days; longest one hundred and nine days. At the time of his report, one third had fistulæ lasting from fifty days to two and a half years, and in every case mentioned with one exception, the sexual function was feeble, impaired, or lost, and three of these patients still use a catheter at times.

In these forty-eight cases there is a mortality of three, but the fact that the last case reported on his list was done through a suprapubic opening is suggestive that he is not quite contented with the results obtained.

According to Escat's[3] figures, based on 382 perineal prostatectomies, 75% were cured, 11% died, and 13% were either total or partial failures. Of 164 suprapubic prostatectomies 78% were cured, 18% died, and only 4% were partial failures. Watson[1] has collected 530 perineal cases with a mortality of 6.2% and 243 suprapubic operations with a mortality of 11.3%.

His figures for late results cover 145 perineal and 53 suprapubic cases. Sixty-six per cent of the suprapubic operations showed cures, as compared with 60% of the perineal operations. He also finds failures in 7.4% perineal operations as against 6.7% for the suprapubic, incontinence of urine in 3.5% of the perineal operations, as compared with 1% of the suprapubic cases, and urethro-rectal fistulæ in 2.7% of the perineal operations.

Proust[4] has gathered records of 813 perineal prostatectomies with a total mortality of 7.13% as compared with 244 "transvesical" with a mortality of 12%.

He describes the post operative-complications after the perineal operation as lesions of the rectum — and in the discussion following his paper 225 perineal operations were reported by ten men who admitted that 7, or 3%, of their cases suffered from this accident — fistulæ, incontinence of urine, stricture formation twice only, epididymitis, orchitis, and loss of sexual power which is permanent and the usual sequel to the operation.

He has found the reported complications after the transvesical operation to be "infinitely less common," than after the perineal, no rectal injuries, no incontinence of urine, persistence of a suprapubic fistula very exceptional, no case of epididymitis or orchitis, and that the sexual ability is usually retained. He has found one report of stricture formation after this operation.

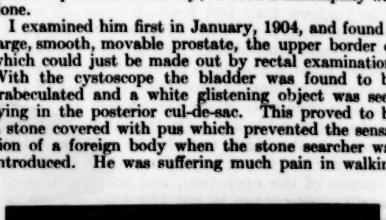
So far as statistics gathered from various operations can be used as a basis for judgment, it would seem that the suprapubic operation offers a better chance for results satisfactory to the patient who survives than the perineal operation.

To return to Watson's paper. He shows that the excess of mortality following the suprapubic operation is due to shock and post-operative pulmonary complications. If there is a variation in technique that will remove this excess this operation ought to become the method of choice.

It has been my fortune to operate on two patients, whom I have been able to follow for more than six months, under a technique which offers some hope of solving these difficulties.

CASE I. — The first was a man of seventy-six years, a patient of Dr. Frank E. Bateman's of Somerville, Mass. He had been using a catheter for five or six years. He had been twice operated upon for stone in the bladder since his catheter life began. In 1900 he had a perineal lithotomy; in 1901 a litholapaxy was done.

I examined him first in January, 1904, and found a large, smooth, movable prostate, the upper border of which could just be made out by rectal examination. With the cystoscope the bladder was found to be trabeculated and a white glistening object was seen lying in the posterior cul-de-sac. This proved to be a stone covered with pus which prevented the sensation of a foreign body when the stone searcher was introduced. He was suffering much pain in walking



Hypertrophied prostate and stone removed from Case I. One-half natural size. Formalin specimen.

and driving, and was obliged to use his catheter two or three times every night. The urine was very foul and contained ¼% albumin. A second cystoscopic examination was made on Feb. 12, which failed to reveal any foreign body, and the stone searcher was equally a failure in this respect.

His pain was so severe and his general condition was so serious, that a suprapubic cystotomy was advised and carried out under local anesthesia, March 5, 1904, Dr. H. M. Chase assisting in both the operations and the after care.

There was no pain until the knife entered the bladder which had been insufficiently filled with the cocaine solution. In exploring the bladder with the finger a large prostate was felt projecting upwards like the summit of a volcano, but no stone was felt. He was put back in bed somewhat tired, but with no evidence of shock. A drainage tube was put in through the suprapubic wound and a large gum elastic catheter was left in the urethra.

Five days later a cystoscope was introduced through the suprapubic wound and the stone was distinctly seen lying in a diverticulum of the bladder wall behind the prostate. It was not possible to get hold of this

[2] Jour. Am. Med. Association, May 28, 1904, *et seq.*
[3] Annals des Malad. des Org. G. U., 1904, p. 1635.
[4] Annals des Malad. des Org., G. U., 1904, p. 1697.

without causing him severe pain and he was given a small amount of ether. After removal of the stone the prostate was enucleated in two masses, the left lobe first and then the right with a median enlargement. Anesthesia lasted ten minutes as the enucleation was exceedingly difficult, probably due to scar tissue from the old lithotomy wound. The hemorrhage was trifling and he was sent to bed with a suprapubic tube and permanent catheter, and a pulse of 72.

The catheter was changed on the second day, the suprapubic drainage tube was removed on the third day and there was *no leakage* from the suprapubic wound thereafter. He sat up on the fourth day and the catheter was removed on the eighth day and not inserted again except to wash his bladder. He left the hospital twenty-one days after entrance and fifteen days after his prostatectomy.

In April he passed as much as 15 oz. of urine at one time with intervals of four or five hours between urinations. There was a little leakage when he exerted himself.

In May he could retain 18 oz. of urine, but still leaked a little. In June he slept eight hours without urinating, could eject the urine more than two feet from his body, and had so little leakage that a thin strip of gauze was often dry after being worn all day. He had two ounces of residual urine and had gained ten pounds in weight. He was not seen again until October, when he was no longer incontinent though his urine had become somewhat purulent and his residual had increased to three ounces.

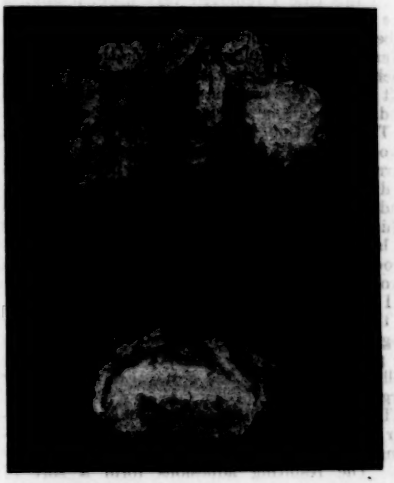
His urine cleared up during November and his comfort continued. In December he became infected with anthrax on his neck and died on the sixth day of his infection.

Through the kindness of Dr. Bateman I was able to obtain the bladder and a part of the urethra. The bladder walls are thick and the interior is trabeculated. Just above the trigone are the orifices of two diverticula which will easily admit the last joint of the index finger. The stone which I removed at the time of the prostatectomy lay in one of these. The orifice of the bladder is surrounded by a thin membrane, partly bladder mucous membrane and partly scar tissue. There is but one opening from the bladder into the urethra. The fossa from which the hypertrophied masses were enucleated is irregular in shape and will hardly contain the last joint of an adult thumb. The mucous membrane of the urethra is continuous with that of the bladder only on the anterior wall in a strip about one fourth of an inch wide. The rest of the mucous membrane was probably removed at the time of operation. The space occupied formerly by the prostatic lobes shows bands of soft tissue for the most part lying vertically, and there is a fossa at this point where the tip of a soft catheter can catch without entering the bladder. The orifices of the ejaculatory ducts are easily made out at the lower end of this fossa and are patent. His right kidney showed a thin walled cyst on the upper anterior surface the size of an ordinary hen's egg, and several smaller cysts. The left kidney showed depressions covered with scar tissue indicating previous inflammatory trouble.

I do not know whether his genital function was lost or not, but his condition until his fatal illness was entirely satisfactory to himself, to his physician, and to me.

Case II. April 5, 1904, a man sixty-four years old, married, was sent to me by Dr. W. W. Howell of West Roxbury, Mass., with urinary obstruction. For two or three years he had been obliged to rise at night to empty his bladder and had some pain in passing his water. The pain was located deep under the pubic arch. He was catheterized in February and 14 oz. of residual urine were found. Since that time he had used a catheter two or three times daily.

At the time of my examination his urine was foul smelling and contained ¼ % albumin and some blood. Residual urine 4 oz. On rectal examination both lobes of his prostate were found hard and large — the right the larger. There was some thickening above the lobes. With the cystoscope the bladder was seen to be trabeculated and some reddened areas were found. The right lobe was apparently the larger, but no median enlargement was noted. He was washed out with silver solutions once a week until June 28, and the pain diminished. There was a slight decrease in the blood in the urine and corresponding decrease in the albumin.



Upper Figure: Hypertrophied prostate removed from Case II. Two-thirds natural size. Formalin specimen.
Lower Figure: Left lateral hypertrophy removed from Dr. Foster's patient. Two-thirds natural size. Formalin specimen.

June 28, a cystotomy was performed under local anesthesia, Dr. Chase assisting as in Case I. There was no pain until the knife penetrated the mucous membrane of the bladder. With a larger amount of cocaine solution the wound was enlarged for exploration of the bladder with the finger which discovered a median projection the size of the end of the thumb, and hard masses on either side of the urethral orifice. A drainage tube and permanent catheter were inserted. Four days later the patient was etherized. The median projection was first enucleated then the right and left all separately. A brisk hemorrhage started after removal of the median lobe, but diminished after the introduction of the permanent catheter and copious washings with hot water, and he was sent back to bed with a large catheter and a suprapubic tube. Anesthesia lasted twelve minutes.

There was a large amount of blood in the urine for the first four days. The suprapubic tube was removed on the fourth morning and replaced that night as the patient had a slight rise in temperature but this replacement was probably unnecessary for it was removed permanently two days later with no trouble. The catheter was removed on the ninth day.

The weather was extremely hot and the patient returned to his home in the suburbs July 16, eighteen days after the cystotomy, and two weeks after the prostatectomy.

The suprapubic opening leaked profusely at first, but closed entirely July 24, twenty-six days after the cystotomy and sixteen days after the suprapubic tube was removed.

In August, he had 6 oz. of residual urine, in September 4 oz., in October 2½ oz., and in November 2 oz. He is able to go nine hours without urinating, has perfect control of his sphincter, is entirely free of pain and says that his sexual function is better than before the operation. His urine contains no albumin and is clear except for a few good-sized shreds.

In this case I removed very little, if any, of the prostatic mucous membrane. The lateral lobes were exceedingly easy of enucleation, not even requiring counter pressure on the perineum, each being removed with the forefinger of the left hand. The convalescence was without pain and the result is satisfactory to all concerned.

The operation has often been performed in two stages and I find that the first stage has been carried out under local anesthesia before, though I did not know it until after both operations had been done. This is the part of the operation which consumes time. Enucleation in these cases of large adenomatous prostates is usually a rapid proceeding and can be done carefully in from two to five minutes.

I believe in making the suprapubic opening in the bladder as small as it is possible to get the finger through. The enucleated nodules can be grasped with stone forceps, and the opening will stretch to allow the removal of surprisingly large masses.

There is an advantage also in making the bladder opening as high up as possible, even to stripping the peritoneum as far back as it will easily go. The resulting adhesions form a sort of suspensory apparatus for the bladder which tends to pull up the posterior wall thereby assisting in obliterating the pouch which usually exists above the trigone. The criticism that the suprapubic or transvesical operation is done in the dark applies equally well to enucleation through the urethra after perineal section, and in many cases to the enucleation through the capsule after this has been opened from behind.

Where the operation will be found most difficult and least satisfactory, is on patients who have a hard fibrous prostate. In such cases I should not think of attempting a suprapubic enucleation, and I doubt if any method will give invariably satisfactory results.

If we could be sure of the absence of a median enlargement before operation, the perineal operation through the capsule with the hope of removing lateral masses without opening the urethra would be the most attractive, but such assurance is difficult to obtain even with the best cystoscopes of to-day.

When there is a decided median enlargement, the urethra or bladder must be opened at some stage of the operation and then the advantage of the incision through the capsule over the older operation through the membranous urethra becomes less marked. Most of these patients have a chronic cystitis of considerable severity before they are willing to submit to any operation. As in other conditions, pain is a more powerful argument for operation than any the surgeon can offer. Suprapubic cystotomy under local anesthesia with drainage relieves them of the pain and some other symptoms of the cystitis without much if any risk to life. Having gone thus far I do not see the advantage of an additional perineal wound when every obstruction is so accessible and so quickly removable from above.

The only objection to the suprapubic operation which is backed up by the careful reports of men who have learned it, is its greater mortality as shown by statistics. This mortality is said to be due to shock and pulmonary complications. If the operation is done in two stages, and the most difficult part of the operation is done under local anesthesia it would seem as if the danger from shock should be practically eliminated.

As to the pulmonary complications, these operations are performed on people who are bad surgical risks. Their power of resistance is feeble and they are kept in bed on their backs for days at a time, the very thing which contributes to the pulmonary complications in other serious trauma, such as fracture of the hip.

Operating in this way the drainage can all be conducted through tubes into bottles, and the patient can sit up from the very first if necessary without the maceration and annoyance of sitting on a pad of wet gauze or a cabinet chair. The suprapubic incision gives most perfect and convenient access to the median enlargements which are found in a large proportion of cases. Moullin[3] says they are present in 86% of all prostatic obstructions and in 43% they form the chief or only obstruction. It permits search for and removal of stones or other foreign bodies. It gives opportunity for a suspension of the bladder which will assist in obliterating the fossa above the trigone, and so far as statistics can be relied upon, it promises a better result to the patient who survives.

It is not easy to understand the advantage of an enucleation which intentionally removes the hypertrophied masses in one piece with the prostatic mucous membrane. Such an operation must injure the muscle fibers which extend from the ureteral orifices into the urethra, but when it is necessary it can be done without fear.

To the surgeon who leaves the after care of his patients to untrained assistants or the casual practitioner, the perineal operation must appeal very strongly.

Drainage in the line of gravity is better than suprapubic drainage, but I believe that frequent through and through irrigation with mild antiseptic solutions is better than either. The proper after care of a suprapubic prostatectomy does require skill, frequent attention, and interest in the result equal to that of the surgeon himself,

[3] Enlargement of the Prostate, 1899, p. 33.

and where these are lacking the mortality rate must continue higher than after the perineal operation.

Nothing but the frank detailed post-operative history of many patients such as that published by Dr. Murphy will settle the question as to which operation should be chosen when either is possible.*

THE PARAMOUNT VALUE OF LOCALIZED RÂLES AS A SIGN OF INCIPIENT PHTHISIS.

BY H. B. WHITNEY, M.D., DENVER, COLO.

I SHOULD hesitate to approach this important but threadbare subject had not the conviction been gradually forced upon me that false conceptions are quite prevalent as to the relative value and frequency of the local physical signs of incipient phthisis. In the first place, it is still a matter of great surprise and of difficult comprehension to us who practise in climatic resorts that so many cases come to us with a history of late recognition. This may be occasionally due to a temporizing policy on the part of the family physician, but it is certainly more charitable to suppose that it is usually the result of uncertain diagnosis. Then, again, while the journals are full of articles upon the early signs of phthisis, it is rare to find them grouped in proper perspective; all appear to be in the foreground, a cog-wheel respiration occupying, perhaps, the same prominent position as a marked localized dullness. A similar indiscriminate grouping of the local signs is also to be found in most textbooks, notable exceptions being the descriptions of Knopf and Strümpell. This is doubtless largely due to the failure to discuss each physical sign separately in all its bearings; for example, great stress may be laid upon the prominence of bronchial respiration without insisting upon the fact that, being an accompaniment of consolidation, it is nearly always absent at an early stage.

Finally, the writer's experience of several years as visiting physician to the National Jewish Hospital for Consumptives, where patients sent from distant localities are always accompanied by a chart of the physical signs noted by the local examiner, has been an ever-recurring source of wonder and amazement. It is astonishing what an infinite number and variety of physical signs may suddenly be discovered in a chest upon the appearance of hemoptysis or of bacilli in the sputum. The most frequent error, in these incipient cases, seems to me to be in the direction of finding too much, especially in the way of dull areas and of changes in the respiratory murmur. Since the recognition of both of these variations from the normal depends wholly upon relative values, and is a question of the perception of delicate shades of musical sounds, it can hardly be doubted that the rôle of auto-suggestion has been very prominent in many of these examinations. It is, for instance, very easy to persuade oneself that a given area is slightly dull on percussion if the belief is held that such dullness is nearly always among the initial signs of focal disease. On the other hand, where great emphasis is laid upon so uncertain a symptom, it cannot be doubted that many incipient cases, without particularly suggestive general indications of tuberculosis, are not properly interpreted and that valuable time is thus lost.

The object of the present paper is to insist upon the supreme importance of localized râles in the diagnosis of incipient pulmonary tuberculosis. Conversely all the other local signs are relatively unimportant because inconstant and often of uncertain interpretation.

Let me attempt to state more accurately the several terms of this proposition. In the first place, it is to be understood that we are dealing with a very early stage of the disease, when there is, perhaps, but a small focus at an apex, and more or less consequent difficulty of recognition: after the development of any considerable area of consolidation, other signs, of course, attain a much greater degree of prominence. The only question now before us is this: Is there any earliest sign of pulmonary phthisis, practically preceding all the others, and essentially maintaining its predominant value throughout the whole incipient stage? Furthermore, the following remarks relate wholly to the usual forms of apical disease, and not to those exceptional cases where the primary focus is elsewhere in the chest: here a patch of râles no longer has the same exclusive significance because of the many conditions other than tuberculosis in which it may occur. Again, it is not proposed to consider here any evidences of phthisis other than the local physical signs; the relative importance of fever, for example, or the sputum tests is not here discussed. Nor is anything affirmed in regard to the negative value of the sign; tuberculosis cannot, of course, be excluded because râles are not discovered, although it is my belief that they do usually appear at a very early stage. Finally, it is not denied by any means that in some exceptional cases the order of the relative value of the various signs may be quite reversed. It is fully recognized that the mode of onset of pulmonary phthisis is subject to considerable variation. Cases may doubtless occur, quite apart from the acute forms of pneumonic phthisis, in which the first evidence of the disease is the development at an apex of a more or less uniform infiltration, producing the usual signs of consolidation and perhaps without râles. I am unable to recall such cases in my own experience, but am not prepared to deny their possibility.

Unquestionably most cases of chronic pulmonary tuberculosis begin at one apex as a mild

* Since the above was written I have operated on a patient of Dr. B. B. Foster's, in Portland, Me., Feb. 5, 1905. This man was seventy-three, married and father of several children. He had total obstruction and had used a catheter for two years. The pain in his bladder had recently required a catheter every hour. A supra-pubic cystotomy and enucleation of an intravesical enlargement of the left lobe were carried out in one sitting under general anesthesia, Dr. Foster assisting. There was practically no hemorrhage. His supra-pubic tube was removed by Dr. Foster on the third day and the catheter on the eleventh. The suprapubic wound was dry on the 23d day, and his convalescence was without fever or discomfort of any sort. When last heard from he was able to go four or five hours without urinating and was absolutely free of all pain. His residual urine if any had not been measured, but there was some return of sexual desire. His case will be reported more fully later.

bronchopneumonia. A few tubercles form here and there in the walls of the bronchioles, through which the bacilli have gained access to the region, and these soon give rise to bronchitic irritation and to limited bronchopneumonia infiltrations. These foci are more or less scattered, not usually voluminous, and separated from each other by fairly normal pulmonary tissue.

If this be the usual form of invasion, we ought not, *a priori*, to expect in most cases to find early evidences of consolidation. Such scattered pneumonic areas not infrequently cause an increased resonance, or a slightly tympanitic note, and they would have to be quite extensive and superficial to cause anything like marked dullness. It is well known that any consolidation at a depth of more than 3 cm. or 4 cm. does not affect the superficial resonance on light percussion (Weil); and it is stated too, by both Wintrich and Scoda, that a peripheral solid area must have quite an appreciable extent — some 4 cm. or 5 cm. in diameter — in order to be discernible on percussion. Whether or not, as Weil believes, an exception is to be made of the extreme pulmonary apex because of its limited size, it is certain that dullness and its necessary accompaniments — broncho-vesicular or bronchial respiration and bronchophony — are not to be reasonably anticipated in a very early stage when areas of consolidation are small and scattered. Some speak of dullness under such conditions from a thickened pleura. Undoubtedly an apical pleurisy may be an occasional cause of dry râles, but it does not appeal to me as a satisfactory explanation of dullness; the usual thickening of such pleuræ is insufficient.

Furthermore, the general statement may safely be made that percussion of the pulmonary apices is difficult and requires an unusual amount of skill and experience in this particular art. I believe it to be even more difficult as regards correct interpretation of results than the percussion of the heart, which is notoriously productive of frequent disagreement. The apices in front, on account of the prominence of the clavicle, etc., are ill adapted to the rapid and accurate adjustment of the plexímeter; while behind, in the suprascapular fossæ, where initial processes are so frequent, the resonance is normally somewhat defective and often difficult to elicit because of a thick layer of muscle and fat. Since dullness is always a purely relative matter, it is, of course, desirable to compare rapidly one region with another; and since at the apices there must be exactly corresponding areas on opposite sides of the chest, comparison becomes far more difficult than elsewhere. I have very frequently amused myself by carefully percussing an incipient case of phthisis, seen for the first time, and attempting to make a diagnosis by percussion alone; time and again I have been wholly unable to arrive at any definite conclusion or, still worse, have found the disease focus at that apex which I had considered most resonant.

Certain other signs commonly adduced as evidence of incipient tuberculosis are extremely inconstant, and so difficult of interpretation when alone as to be of little value. Unilateral diminution of respiratory movement is very suggestive when present, but it usually accompanies a more advanced stage, and is, I believe, imperceptible in the majority of very early cases. Increased fremitus is also associated almost wholly with more or less extensive areas of consolidation; it belongs really with the stage of dullness. Moreover, the marked preponderance of normal fremitus at the right apex greatly lessens the usefulness of the sign. Cog-wheel, or interrupted, respiration is too rare to be a sign of much value, and is not peculiar to tuberculosis. Prolonged or harsh expiration occupies a somewhat different position from the signs hitherto mentioned, and when unequivocal it cannot be denied a considerable degree of importance as an early and suggestive indication of apical disease. But here again, there is always the great difficulty of reaching a positive conclusion. Certainly in the great majority of cases the pitch of expiration is only a little above normal and only very slightly prolonged. Unfortunately it is not always easy to say just what normal is. Comparison with a corresponding region on the opposite side is often illusory because of the normal and very frequent exaggeration of the expiratory sound at the right apex. Moreover, the expiratory murmur is a varying quantity according as one listens near to or far from the trachea and large bronchi. Personally, I could never regard an apparently prolonged or harsh expiration as more than a highly suspicious circumstance, to be confirmed or rejected in the light of other evidence.

In marked contrast to the uncertainty and more or less difficult interpretation of the signs hitherto mentioned are the characteristics of localized râles. I do not hesitate to affirm my own belief that when ever a few râles are constantly found at the apex only of one or both lungs, the diagnosis of pulmonary tuberculosis is almost certain. My own experience would seem to indicate that this sign is nearly pathognomonic; and although it is true that râles are usually spoken of in the books as frequently present, I do not think their enormous importance, without dullness or perhaps any other local sign, is very generally appreciated. Possibly this is not surprising when, for example, in such a well-known book as Ander's *Practice of Medicine*, the most characteristic grouping of physical signs in the stage of invasion is described as lagging expansion, increased tactile fremitus, slightly impaired percussion resonance, enfeebled vesicular murmur, and prolonged expiration; râles are not even mentioned.

The exact character of these râles to which I believe so much importance should be attached has little to do with their interpretation. Moist râles are, on the whole, most significant. The much rarer sonorous and sibilant râles are somewhat less so, as being sounds which occasionally originate outside the lung itself; for instance, an occasional squeak may be pleuritic — though

even an old apical pleurisy is probably tuberculous in origin. Certainly the most frequent and characteristic râles are fine, moist, or perhaps rather dryish clicks, heard singly or as an explosion during or at the end of inspiration, and in a general way, to be termed subcrepitant; true crepitant râles I have never found in incipient phthisis, though they are mentioned by some authors in this connection.

Râles are, of course, to be everywhere carefully sought in a case of suspected tuberculosis, but with rare exceptions they will be found, if at all, at the apices of the upper, possibly also of the lower, lobes. Certain localities in the upper chest deserve especial mention. Kingston Fowler has shown that the primary focus is oftenest somewhat below the extreme apex of the lung and nearest the posterior surface. In front, this area of predilection is just below the middle of the clavicle. In my own clinical experience the earliest râles have been found, I think, somewhat oftener, behind, in the supra-scapular fossa, than in front; and I also have observed that the regions just below the middle and outer third of the clavicle are especially fertile fields. The apices of the lower lobes, corresponding to the fourth or fifth dorsal vertebra, deserve also particular notice. These regions are apparently apt to be invaded at a time when the process at the apex of the upper lobe is still very limited. Râles are therefore not infrequent in the upper and middle interscapular fossæ, and in a few instances I have detected them here when apical signs were entirely absent.

Very much depends upon the way in which râles are elicited. It is, perhaps, best to listen first during ordinary respiration — for various reasons beside the question of râles. But this is relatively unimportant as compared with a method of breathing which may be described as a rather rapid and forcible inspiration, with open mouth, and an inspiration which is as quiet and natural as conditions permit. These deep, quick breaths are not to be hurried — there should be no increase in the respiratory frequency. Râles are often induced by this manner of breathing when they would be otherwise imperceptible, and it is far superior to the very long and deep inspirations which are sometimes recommended.

Of far greater importance is still a third phase of auscultation which is, in my opinion, the crucial and indispensable feature of every examination of the chest for incipient phthisis. What follows might properly be put in italics, so important is it, and yet so very commonly neglected. The patient should be instructed by the examiner how to give a short, quick cough, to be followed after a very brief interval by the same deep, quick inspiration above described. This cough and inspiration should be executed *lege artis;* and I dwell upon details both because of their great importance, and because very few patients who come into my hands appear to have ever been thus examined. Any cough approximating to a simple clearing of the throat is wholly unsatisfactory; it does not agitate sufficiently the bronchial mucus. On the other hand, too loud and violent a cough, or a rapid succession of coughs, shakes the whole chest, displaces the stethoscope with possible production of extraneous sounds, often starts a fit of coughing, and otherwise obscures the detection of the fine clicks for which search is being made. Again, many patients, though producing correctly a single, slight, but genuine cough before each act of inspiration, nevertheless, insert a short vocal tone between the two which is probably familiar to all who thus examine and is exceedingly troublesome; this must be eliminated. In short, for perfect results, the patient must be taught, often with considerable pains, to make a single superficial, but genuine cough, accompanied by the least possible movement of the chest, and followed after a very brief interval by the forcible inspiration above described. This succession of coughs and inspirations is then continued systematically until every square inch of the apices at least has been examined. The importance of this procedure and the frequently astonishing results can be appreciated only by those who have habitually put it into practise. Râles, often in large numbers, may appear where all previous methods of examination had disclosed nothing abnormal. Oftenest there are a few scattered clicks at the end of inspiration; very often also an explosion of fine bubbles, either at the end of inspiration or occupying the brief interval which follows the cough. No amount of coughing or deep inspira- will produce râles in a healthy individual. In the rarest possible instance a dry click or two may be occasionally heard — I can recall two or three such cases; but such râles are usually bilateral, or inconstant, or, as I have observed several times here in Colorado, when examining for insurance, the individual will be found to have suffered in past years from an incipient pulmonary tuberculosis. This latter fact, namely, that fine râles after cough may frequently be found at an apex many years after otherwise complete recovery is also, perhaps, not without significance in estimating the relative value of incipient local signs. It might reasonably be argued that the last sign to persist is not improbably the first to appear.

Should anyone doubt the significance of râles in a beginning tuberculous process, and the necessity of cough for their production, let him study from this point of view the next case of moderately advanced phthisis which comes under observation. First note carefully all those signs — dullness, increased fremitus, râles, possibly cavity signs, etc., perceptible on ordinary or even deep respiration. Then let the patient go through the process of cough and deep breathing as above described. Observe, now, how the extent of the disease has suddenly increased; how râles have appeared several inches, perhaps, beyond the apparent border of the affected area, and the apex, possibly, of the opposite lung, where everything seemed to be normal, is now full of moisture. Or if the case be going in the wrong direction, note the signs to-day and follow them carefully

for some months. This can hardly fail to demonstrate that neither dullness nor the other obligatory signs of consolidation but the appearance of moist râles after cough is usually the first evidence of the invading enemy. If this be true of the advancing process in an old case, it should also be true of the incipient stage.

The great and predominant value, then, of localized râles in the diagnosis of incipient tuberculosis consists first, in their almost constant presence at a time when other local signs are absent or at most indefinite. Second, in their practically unmistakable character, thus differing widely from other signs which represent merely deviations from the normal. Third, in the fact that when occurring at an apex they are almost pathognomonic, other conditions which might produce them being exceedingly rare. While, therefore, other local signs are of great value, especially for the few experts who by long experience have learned their limitations and the frequent difficulty of interpretation, the presence of localized râles must ever remain the essential guide to early diagnosis for the rank and file of the profession.

THE THERAPEUTIC VALUE OF SOME DIGESTIVE PREPARATIONS, AND THE INDICATIONS FOR THE USE OF PEPSIN, IN DISEASES OF THE STOMACH.*

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THE employment of digestive preparations in the treatment of stomach and intestinal diseases is undoubtedly very extensive. Clinical experience seems to have taught that these agents relieve certain symptoms, and probably some physicians believe they possess actual curative properties. On the other hand, there are physicians who has very little confidence in the efficacy of these preparations, and in consequence do not use them.

Now it is fair to assume that the virtue of these products lies in their power to digest, the purpose for which they are intended. Since they have to do solely with the chemical process of digestion, we can determine accurately the extent of their participation in this process. We have for this purpose certain tests, the conditions of which may be made to approach so near to those of the chemical process of digestion in the human stomach that one has very little reason to doubt the reliability of their results.

The preparations which we are to consider are: (1) an essence pepsin, (2) an ess. pepsine, (3) a scale pepsin, (4) an elixir and tablets lactopeptine, (5) liquor diastos, (6) tablets pepsin and pancreatin, (7) tablets panzyme, (8) tablets peptenzyme, (9) an elixir digestive ferments, (10) and papain.

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These particular preparations were selected simply because they were the most available. Their various menstrua probably exert no marked influence upon digestion.

From extensive advertising, if not from personal experience with them, probably many of these preparations are familiar to you.

We learn from the manufacturers of the *complex* products that their digestive power depends upon the presence of one or more of the digestive ferments,—pepsin, rennin and pancreatin. Tests show that all of these preparations are *acid* in reaction, due to the presence of lactic or HCl acid. In the case of some of these products, very likely the agents representing them have called your attention to this fact and reminded you that pepsin preparations are active in acid media only.

While most of us know something of the action of the simple ferments,—pepsin, pancreatin, etc., of these complex products in acid solutions, or made into tablets and powders which are acid in reaction, our knowledge is less, and too often we accept the statements of the manufacturers regarding their therapeutic properties. It may sound very plausible indeed, when the proprietor of a product tells us that through its diastatic ferment, his preparation digests starch in the stomach the same as saliva, and that by the presence of the active ferments, pepsin and rennin, proteids are converted into peptone and milk coagulated as by the gastric juice itself; also, that when the chyme is forced along into the duodenum the pancreatin of his preparation passes along with it, and there further digests proteids and starch the same as is done by the natural pancreatic juice.

Thus, if one does not stop to give the matter some consideration, he may easily be led into the belief that these complex solutions, some so beautiful in color, and that these tablets, put up in bottles so convenient to carry in the pocket, are in many ways superior to simple pepsin and pancreatin preparations.

We know that pepsin in a properly acid medium digests proteids, both in the stomach and in test tubes. We are told that all of the complex preparations here mentioned, contain pepsin. We find by tests that the liquids, tablets and powders are acid in reaction. In fact, we are told by the manufacturers that these products are, in themselves, digestants of proteids.

Hence to determine their digestive power one simply adds a piece of coagulated egg albumen or a piece of fibrin to a given quantity of the liquid digestants, or to a water solution or suspension of tablets and powders, contained in test tubes. The tubes are then left in an oven having a constant temperature of about 110° F., for several hours, being occasionally shaken, to imitate the action of gastric peristalsis. If such fluids are digestants, *per se*, the egg or fibrin disappears. It is converted into peptone.

This was the first test to which these products were subjected and in each case the result was *negative*, no digestion whatever occurred.

In fact, no digestion was expected, because it had been previously ascertained that none of the preparations were acid enough to render their pepsin active. However, the tests proved conclusively that none of these products are digestants of proteids, *per se*, and this was the point to be proven.

But some one may very pertinently ask, "May not these agents become active when taken into the stomach?" Let us see.

One of the gastric disorders in which one would be most inclined to use these agents is chronic gastritis. From a patient with such an affection some of the fresh gastric juice was procured. It contained no free HCl. Twelve test tubes, each containing 5 cc. or 1¼ d. of this gastric juice were used. To tube No. 1 a piece of egg, only, was added. To tube No. 2 a piece of egg and HCl was added. To the ten other tubes pieces of egg and certain quantities of the digestants were added. The tubes were then left in an oven, temperature 40° C. for twenty hours, being occasionally shaken. At the end of this period the following results were noted:

Tube No. 1, containing the gastric juice and egg showed no digestion.

Tube No. 2, containing the gastric juice, hydrochloric acid and egg showed complete digestion, while the ten other tubes containing the gastric juice and egg, and the digestives, showed no digestion at all.

From these tests we learn the following facts:

(1) First, that gastric juice, deprived of its free HCl is incapable of digesting proteids, even if its pepsin is present.

(2) That the same juice, when properly acidulated, becomes active and digests proteids, thereby proving the presence of is natural pepsin.

(3) That the addition of any of these digestives to such a secretion aids in no way whatever its digestive power.

In order to prove this last statement in a more practical way, the following test was made:

To a patient with gastritis, an active essence of pepsin, and tablets of lacto-peptine were given on different occasions after eating. At the end of certain periods the stomach contents were removed and the digestive power of the gastric juice determined. It was always found to be absolutely *negative*, the same as when no digestants were administered.

To some these tests may seem simple, even superfluous, in view of our knowledge of the subject, yet they confirm a fact not universally known and duly appreciated, it is that *as yet we have no digestive preparations depending upon the ferment pepsin for their activity which, in themselves, aid the digestive power of any gastric juice when it is deprived of its HCl.*

This statement applies not only to the ten preparations under consideration, but to *all* similar products.

The reason for this is that no pepsin, not even that of the gastric juice, has any power to digest except in the presence of a properly acid medium. Moreover, no pepsin can be prepared and put upon the market in a strongly acid medium and remain active, for as Mr. B. T. Fairchild[1] says, "If we submit pepsin to long continued contact simply in dilute hydrochloric acid (.25%), we find the pepsin to progressively deterioriate in activity. Therefore, acid cannot, with impunity, be added to pepsin in solution in the manufacture of products necessarily to be submitted to conditions of commerce."

Yet not infrequently we see prescriptions calling for pepsin in combination with HCl of such strength as to immediately paralyze the pepsin used!

The comparative peptic values of these ten preparations were not accurately determined, but, by tests made under various conditions it was always found that the essences and scale pepsins were the most active, while panzyme and the elixir and tablets of lactopeptine were the least active.

Pancreatin: It is a well-known fact that pancreatin in substance, solution or simple tablet, is soon rendered inert by the gastric juice when taken into the stomach. And this is the fate of that ferment as combined in some of these preparations. The recognition of this fact has led to the manufacture of pills and tablets of pancreatin coated with keratin, salol, etc. While such coatings do protect the ferment from the action of the gastric juice, it is a question if they are dissolved early enough in the intestine to allow the pancreatin to be of any service in digestion.

As to the combination of pepsin with the pancreatic ferments in solution, Mr. Fairchild says: "That the ferments combined in solution are antagonistic to each other has often been pointed out. Scheffer early called attention to the incompatibility of pepsin and pancreatin, and pepsin and diastase in elixirs. It is impossible to prepare any media suitable for the preparation of the enzymes of the stomach and pancreas in combination in solution, for whether the reaction of the preparation be neutral, alkaline, or acid, there will be a gradual, sure, progressive deterioration of the product under the commercial conditions to which the preparation must be submitted. If the liquid preparation of the mixed peptic and pancreatic ferments be neutral or alkaline, the pepsin becomes destroyed. If acid, all but the pepsin will perish, and the acid compound will, therefore, be found to be devoid of any pancreatic activity."

According to their formulæ, elix. lacto-peptine, elix. peptenzyme, liquor diastos and elixir digestive ferments are examples of such incompatible preparations, and very likely there are many others not known to the writer.

Just a word more to show why some of these preparations are not what they purport to be.

Papain: The advantages claimed for this product are, that it will digest proteids in an acid, neutral, or alkaline medium. The sample

[1] Mr. B. T. Fairchild: The Evolution and Use of the Animal Digestive Ferments in Medicine. Read before the Pharmaceutical Meeting of the Philadelphia College of Pharmacy, Jan. 21, 1902. Published by the American Journal of Pharmacy, vol. lxxiv, Nos. 2 and 3.

tested showed moderate activity in an acid medium, but none whatever in a neutral or alkaline medium.

Of one preparation the manufacturers state: "This product contains the five digestive agents — pepsin, ptyalin, pancreatin, lactic and hydrochloric acid — combined in the same proportion as they exist in the human system."

This statement is too absurd to warrant any consideration whatever, except the meaning which it is intended to convey. In the writer's opinion, its object is to lead the reader into the belief that the preparation is a digestant *per se* of all forms of food. But this delusion is at once removed by the agent representing this product, who, in a personal interview, said: "To test its peptic value, perform the usual test, using an *acid medium* of .5% HCl." An acidity, by the way, twice that of the gastric juice ever found under normal conditions!

Another product is said "to contain all known ferments and digests albumen, fat, starch and cane sugar without the extra addition of acid or alkali." Yet in a personal letter, dated Jan. 9, 1904, the manufacturers say, "The peptic power of this product must be tested in the usual way, using *acidulated* water, .2% to .25% HCl." In other words, *add* acid.

Such disclosures as these suggest one of two things, either gross ignorance, or brazen attempts on the part of the manufacturers to deceive those who employ these preparations.

Now the very important question presents itself: In what diseases of the stomach is pepsin indicated?

In all gastric affections regardless of their cause, in which free HCl is present, pepsin is not indicated, because the native ferment is always found and in sufficient quantity. In the vast majority of all gastric conditions, characterized by the absence of free HCl, whether due to functional or organic causes, pepsin is not indicated, because after proper acidulation of the gastric juice, it becomes active, showing that pepsin is still present. These two classes of gastric disorders comprise over 90% of all stomach affections, and in their treatment pepsin is never indicated. In all cases of atrophic gastritis, and achylia gastrica and in some cases of cancer of the stomach, both HCl and pepsin are lacking. As a result, here we meet a true indigestion of certain foods in the stomach.

It is upon our knowledge of the existence of such conditions that large doses of HCl and pepsin have been based, and extensively employed. It is perfectly evident that pepsin alone, in these conditions, is of no service, because we know that even the native pepsin, when present, is not active except in the presence of a certain amount of HCl, consequently both HCl and the ferment are used.

By chemical examination of the gastric juice we can determine accurately any deficit of HCl which may exist. Hence, it would seem an easy matter to supply such a deficiency by administering the acid by mouth. This is the object *attempted* by those who use large doses of HCl together with pepsin. But in practice it is found that the large doses necessary for this purpose are impracticable of administration. Such being the case, it is a useless proceeding to use pepsin and then attempt to render it active by giving large quantities of HCl.

While a diversity of opinion yet prevails, regarding this subject, the following quotations will give one an idea on which side of the question the preponderance of evidence rests:

Einhorn:[2] "Pepsin used to be, and is yet, frequently given in combination with HCl. Most writers, however, concur in the absolute inefficacy of this drug, and for two reasons: (1) In most instances, even of diminished secretion, there is yet an abundant quantity of pepsin present. (2) Most pepsins in the market do not, by any means, show as strong digestive properties as the true pepsin of the stomach. Of late years I have entirely abandoned the use of pepsin."

Ewald:[3] "Pepsin was for a long time regularly prescribed with HCl with the pernicious idea that if it did not help, it certainly did no harm. Its use should be restricted to those cases in which an absence can be proven."

Reigel:[4] "In general the administration of pepsin is rarely indicated. The digestion of albumen is rarely improved by the administration of hydrochloric acid even if large doses are given together with pepsin. This is due to the fact that the quantity of HCl that we can administer is very much smaller than the quantity needed to make up the deficit of HCl in the gastric juice."

The theory was that HCl and pepsin given by mouth would take the place of these agents when lacking in the gastric juice, but in practice, it is found they do not. However, stimulation of the functions of the stomach, by means of our various methods of treatment, is probably far better therapy than a useless or even a successful attempt at their substitution.

The facts stated in this article are well known to all physiologists, and may be verified by reference to any textbook that considers the subject. If these facts are brought home for the first time to some of the readers of this article, its object will be attained.

INFECTIONS OF THE RESPIRATORY TRACT WITH INFLUENZA BACILLI AND OTHER ORGANISMS, THEIR CLINICAL AND PATHOLOGICAL SIMILARITY, AND CONFUSION WITH TUBERCULOSIS.

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(Concluded from No. 19, p. 540.)

V. PATHOLOGICAL SIMILARITY OF INFECTION WITH INFLUENZA BACILLI AND WITH OTHER ORGANISMS.

THE study of sections from cases of acute bronchopneumonia, associated with influenza bacilli, shows, as Pfeiffer first described,[5] an

[2] Diseases of the Stomach, 1898.
[3] Diseases of the Stomach, American edition, 1900.
[4] Diseases of the Stomach, American edition, 1903.
[5] Pfeiffer: *Loc. cit.*

infiltration of the bronchi with pus cells and partial or complete destruction of the ciliated epithelium. The neighboring alveoli are filled with leucocytes and exudate, which may efface the normal pulmonary structure. Each diseased area may usually be seen in relation with a bronchus. Influenza bacilli may be found in and between the pus cells with a few other organisms.

The most favorable event in such cases is in resolution, which does not, however, always take place, as is shown by the study of the subacute or more chronic cases. It is occasionally observed that isolated alveolar spaces, closely packed with pus cells, are softened and form small miliary abscesses. A second unfavorable result is the infiltration of the involved parts of the lungs with connective tissue cells and the production of focal or diffuse induration.

Weichselbaum,[8] in a study of eight autopsy cases of bronchopneumonia, in which he demonstrated influenza bacilli and other organisms, observed a more or less advanced induration in three.

In a study of 13 autopsy cases of bronchopneumonia, with influenza bacilli and other organisms, we have noted the histological characters above described, with the presence of small abscesses in two and a varying degree of pulmonary induration in seven (macroscopic in 3, microscopic in 4).

Though no clinical difference could be noted in the cases of respiratory infection with influenza bacilli, pneumococci or the micrococcus catarrhalis, it was thought that some distinction might be made in different infections from a study of autopsy cases of bronchopneumonia, due to different organisms.

In all, 85 cases of bronchopneumonia, associated with various organisms, have been studied. These cases were drawn from the first 1,200 autopsies performed under Dr. J. H. Wright's direction at the Massachusetts General Hospital. Their number is small, beacuse only those cases have been selected in which there are careful records of the gross and histological findings, in which sections from the lungs have been preserved and in which in gross no tuberculosis was found. In the sections from these cases there was also no microscopic evidence of tubercles, caseation or other appearance of tuberculosis. The cases represent for the most part infection with pneumococci, the pyogenic cocci, influenza bacilli, etc.

As in the clinical cases, the larger part of them are mixed infections with two or more organisms, as is shown by the results of cultures taken at the time of the autopsy and the staining of sections for bacteria.

Neither in the cases of mixed infection with different organisms nor in those in which one group of organisms predominated was it possible to note any striking or constant difference in the character, extent or intensity of the broncho-pneumonic process.

These 85 cases may, therefore, be conveniently considered as a whole. In their study some explanation is found for the occasional persistence of symptoms and pulmonary signs after an acute pulmonary infection, and their not infrequent confusion with tuberculosis.

The bronchopneumonic process, of varying extent, was in general most often found in the lower lobes of the lungs, the left lobe being affected 45 and the right 54 times. In the superior lobes the process was found on the right side in 30 cases and on the left in 24. The middle lobe of the right lung showed the smallest number of infections, — in 14 cases.

Abscesses of varying extent were present in 16 cases (macroscopic in 10, microscopic in 6). Pulmonary induration was found in 31 cases (macroscopic in 12, microscopic in 19). In many of the cases these changes were too slight to have given rise to clinical signs. In the more advanced cases, the autopsy findings suggest an explanation of the persistence of cough and localized or diffuse bronchitis after an attack of apparently completely resolved bronchopneumonia, in which small defects in the lungs may never be fully repaired and remain as permanent pockets for the development of bacteria. In other cases the pulmonary changes had progressed so far that they might well have been detected by careful physical examination during life and if localized at one place in the lung have been confused with pulmonary tuberculosis.

In the study of cases of acute broncho-pneumonia the beginning of small abscess cavities can be noted, and in the more sub-acute or chronic cases the formation of new fibrous tissue from the interalveolar septa, the interlobular, peribronchial and perivascular connective tissue, but in the examination of the developed abscess cavity or pulmonary induration it may be impossible to detect its origin in bronchopneumonia. In the failure to find changes characteristic of tuberculosis either in gross or microscopical examination of such tissue, it is natural to suppose that the simpler inflammations may be a sufficient cause for their origin. Only so far as the pathologist's examination approaches completeness, however, does the possibility of tuberculosis recede.

In eight of these 85 cases, there were well-marked localized abscesses, pulmonary induration or both. On gross inspection of the diseased foci, including its appearance on thin sections with the knife and microscopic preparations from the abscess wall or the areas of most advanced interstitial change, there was no evidence of tuberculosis. The site of the process in these eight cases was as follows:

Superior lobes: (1) At both apices, an area of fibroid tissue, at the right extending in from pleura; at the left apex containing an irregular cavity, about 1 cm. in greatest diameter, with trabeculated walls, lined with mucous membrane which is apparently continuous with a small bronchus.

[8] Weichselbaum: Beitrage zur Aetiologie und pathologische Anatomie der Influenza. Wiener klin. Woch., 32–3, 1892, pp. 459; 477.

Sections, including the cavity, show extensive fibroid induration, but no evidence of tuberculosis. Autopsy number, 53.

(2) The greater part of the anterior portion of the superior lobe of the left lung transformed into an irregular cavity, containing a dirty, reddish-brown, foul material. The cavity is lined with a dirty, grayish-green, firm membrane, fading out into lung tissue. The tissue of the remaining portion of the upper lobe is resistant to the touch, and presents evidence of increased connective tissue. The adjacent pleura is covered with a thin fibrinous layer. Examination of microscopic sections, including the abscess wall, shows increase of connective tissue, but no tuberculosis. Autopsy number, 105.

(3) The right superior lobe over a large part of its extent, especially the superior and posterior part, is diminished in size, resistant and extensively transformed into blackish, grayish, fibrous-like tissue of a very tough consistency. Sections from the indurated lung show increase of connective tissue and obliteration of the alveoli. Masses of black pigment are seen in the connective tissue, but no evidence of tuberculosis. Autopsy number, 872.

(4) The right superior lobe is of almost board-like firmness, and on section, finely granular, pale and grayish. Microscopical examination shows a small abscess cavity in one of four preparations and increase of connective tissue, but no evidence of tuberculosis. Autopsy number, 394.

Lower lobes: (5) The left inferior lobe on its posterior and lateral aspect shows a patch of fibrinous exudate on the pleura, about the size of a silver dollar. In the adjacent lung tissue there are a number of pinhead sized cavities, containing thick purulent material and apparently connected with the bronchial tree. The lung tissue about these small cavities shows some grayish-red solidification. This area of pulmonary change includes only about one quarter of the lobe. Microscopic sections of the involved part of the lung, show abscesses, some of which seem to be connected with the small bronchi. No evidence of tuberculosis. Autopsy number, 445.

(6) One third of the lower part of the inferior lobe of the right lung is contracted and shows old fibrous pleural adhesions. Microscopical examination of this lobe shows thickening of the alveolar walls, with marked increase of connective tissue. There is also some desquamation of epithelium. No evidence of tuberculosis. Autopsy number, 106.

One entire lung: (7) The pleura of the left lung is generally markedly thickened. It is flattened and compressed from the presence of pus in the left pleural cavity. On section, the pulmonary tissue adjacent to the pleura is generally compact, rather tough and fibrous in character. On the cut surface there are numerous, small, dense, yellowish-white areas, many of which are apparently the cut ends of bronchi. The bronchi are somewhat dilated, their walls are thickened and whitish in color. They contain considerable yellow, semi-fluid, pus-like material. Microscopical examination of the lung, including the thick pleura, shows the pleura to consist of dense connective tissue. The lung also shows increase of connective tissue. In places, there are areas of suppuration and abscess formation, but no evidence of tuberculosis. Autopsy number, 878.

(8) In this case, which will be mentioned more in detail, there was chronic interstital pneumonia of the left lung, with abscess formation and bronchiectasis. Acute bronchopneumonia with abscess formation of the right lung, and no evidence of tuberculosis. Autopsy number, 651.

VI. THE CLINICAL CONFUSION OF SUCH CASES WITH TUBERCULOSIS.

In clinical work, it is by no means rare to see cases with localized râles at some place in the lung with or without persistent signs of pulmonary solidification, in which the suspicion is strong that the case is one of pulmonary tuberculosis, but in which repeated examination of the sputum fails to reveal tubercle bacilli and no reaction is obtained after the injection of tuberculin. Such cases find their explanation in the pathological changes resulting from infections with less virulent organisms. They do not usually tend toward a fatal termination, but rather remain stationary, or slowly progress toward recovery, as is shown by the clinical histories of the above groups of infection.

The early diagnosis of pulmonary tuberculosis is so important and clinical experience so often confirms the suspicion that localized râles or pulmonary solidification means tuberculosis that it is usually safer to give the patient the benefit of the doubt and treat him for tuberculosis, but in view of the impossibility of making the diagnosis without finding tubercle bacilli, I believe that their presence should be regarded as the only infallible indication of that condition. As only about one half of the cases reported as cured in the statistics of institutions for the cure of tuberculosis are thus proved, it is probable that many non-tubercular cases are included and the percentage of reported cures thus materially raised.[7]

It may suffice to detail the clinical course and the autopsy findings in one of the cases previously mentioned to show that such confusion actually does occur, as might be supposed from the pathological findings in the above cases.

E. McC. (Autopsy number 651.) Single, nineteen years old, entered the Good Samaritan Hospital with the diagnosis of pulmonary tuberculosis Oct. 2, 1900, in the service of Dr. E. P. Joslin, to whom I am indebted for the privilege of reporting the case.

Family history: Her father died of tuberculosis, her mother from "accident." Four brothers and one sister were well.

Previous illnesses: With the exception of measles in childhood, frequent "colds" and two attacks of "appendicitis" the patient had been well.

Present illness: About eight months before entrance, the patient thought she caught "cold." A cough of increasing severity had persisted since. One week before entrance, she had an attack of hemoptysis, the amount of which the patient estimated at "one pint." The cough had been more distressing since then. She was short of breath. She had had night sweats, and lost weight. At night she was more comfortable when lying on the left side. In general she did not sleep well. Her appetite was poor, the bowels were regular.

Examination: The patient was slightly emaciated. Inspection of the lungs showed that the excursion of the left was restricted. The heart was in the normal position. There were signs of diffuse bronchitis throughout the left lung, which appeared to be solidified, with signs of a cavity in the right upper lobe, in front and below the angle of the left scapula.

[7] Lord, F. T.: "Arrested Tuberculosis." Should improved cases be thus recorded? BOSTON MEDICAL AND SURGICAL JOURNAL, Feb. 25, 1904.

Repeated examination of the sputum failed to reveal tubercle bacilli, but elastic fibres were found.

On Jan. 19, 1901, she was transferred to the Massachusetts General Hospital, where an operation was performed to evacuate the abscess in the lower part of the left lung. At operation, a small amount of pus was obtained, but a few days later a larger flow of pus suggested the emptying of another pocket.

The patient died on Jan. 27, 1901, of bronchopneumonia.

Autopsy (by Dr. J. H. Wright): The right pleural cavity contained about 50 cc. of thin blood-stained fluid. The left pleural cavity was obliterated in its posterior portion, over the superior and inferior lobes, by tough fibrous adhesions. The lateral surface of the inferior lobe was covered with a fibrous layer about 3 mm. in thickness. The base of the lung was firmly adherent to the diaphragm by adhesions.

Over the posterior and inferior aspects of the right inferior lobe were patches of fibrinous, membranous exudate and near the junction of the median and superior lobes a small patch of shreddy connective tissue. The inferior lobe of the left lung was smaller than the superior lobe. The left lung was generally resistant to touch. The lower lobe was somewhat nodular.

At one place in the inferior lobe of the left lung, there was an elongated opening, about 2 cm. in length, extending into a flattened cavity in the lung substance, about 3 cm. in greatest diameter. This opening corresponds to an opening in the thoracic wall a few centimeters below the angle of the left scapula. The wound in the thoracic wall showed that a part of one rib had been removed at this place. The pulmonary cavity was lined with a grayish, wrinkled, shiny layer.

On section of the remainder of the inferior lobe of the left lung, numerous irregularly shaped cavities were seen. The walls of these cavities were dark red, and some of them appeared to be dilated bronchi. The largest of the cavities was about 23 mm. long by 6 mm. in diameter. They were filled with a foul, brownish red fluid.

The lung tissue between the cavities was represented by a grayish, leathery, fibrous-like tissue, in which practically nothing remained of the normal pulmonary structure. In places, this tissue showed some black pigmentation.

The superior lobe of the left lung, on section, was found sown with small cavities, in general measuring 2 to 6 mm. in diameter, the largest being 17 mm. by 25 mm. These cavities were filled with foul, yellowish-grayish, thick, purulent fluid.

The lung supstance between the small cavities was more resistant than normal and presented a fine yellow mottling, due to the presence of numerous pin-point, yellow areas. In places there were grayish, translucent, fibrous-like areas with ill-defined outlines, about 3 to 4 mm. in diameter. The interlobular connective tissue appeared generally increased, so that some of the lobules were sharply marked out by it. This superior lobe appeared to be completely involved.

Scattered through the superior lobe of the right lung and occupying about one third of its extent were numerous grayish, granular areas, varying in diameter from 1 mm. to 7 mm. projecting somewhat from the cut surface. In addition to these, small yellow points were seen. On pressure, these yielded droplets of whitish, purulent fluid. At three points in the lobe were cavities filled with foul, dirty, grayish pus, the largest of these nearly 2 cm. in greatest diameter, the smallest about 6 mm. These cavities were lined with a dirty, grayish, necrotic membrane less than 1 mm. in thickness. These grayish granular areas gave an obscurely resistant feel to the portions of the lobe in which they were situated.

The median lobe of the right lung was not remarkable. The inferior lobe of the right lung showed, scattered through about one half of its extent, numerous, thickly sown, grayish to yellowish discrete and confluent areas. Many of these were perhaps 2 mm. to 3 mm. in diameter. Some of them were opaque in appearance and with ill-defined outlines. Over a limited area of the lobe, there seemed to be a fairly homogeneous consolidation, the cut surface being finely granular and gray-red. In many places in this area, there were small cavities containing yellow pus. These cavities were lined with a dirty, grayish membrane a fraction of a millimeter thick. The largest of these cavities was about 7 mm. in diameter. The bronchi show a red mucosa, bathed with a bloody, muco-purulent material.

The bronchial glands were not enlarged.

Microscopical examination: Left lung, examination of a large number of sections from the lung showed marked increase of the interstitial connective tissue, with thickening and desquamation of the alveolar epithelium. Many of the bronchi were denuded of epithelium and the sub-mucosa was markedly infiltrated with small cells. In many places the bronchial walls appeared to be undergoing suppurative disintegration, and the appearance in the sections may be that of abscess formation. The epithelium of the dilated bronchi showed more or less transformation into a squamous type. The condition of the lung was that of chronic interstitial pneumonia, with abscess formation and bronchiectasis.

Examination of sections from the right lung showed exudation of fibrin and leucocytes into the alveoli, with abscess formation. There was some desquamation of alveolar epithelium. The condition in the right lung was that of acute bronchopneumonia with abscess formation.

Neither on gross or microscopical examination was there any evidence of tuberculosis or actinomycosis, for both of which a careful search was made.

VII. THE RÔLE OF THE INFLUENZA BACILLUS IN THE ACUTE RESPIRATORY INFECTIONS.

A. *Pathogenesis.* — (*a*) Animal experiments: Pfeiffer[8] was unable, in many experiments with the influenza bacillus, to produce a true infection in animals. Numerous experiments since Pfeiffer's have confirmed his negative results. There are, to be sure, a few observations in the literature of isolated apparent infections of animals with the organism, but they occur in so small a proportion of cases that they cannot be said to have established any constant pathogenesis. Influenza bacilli have been recultivated from animals after inoculation, but I know of no successful transfers from animal to animal with a constant lethal result. A large dose of the bacilli may produce death, but there is no conclusive evidence that multiplication of the injected organisms takes place.

The work of Perez[9] on this subject still needs confirmation. His results diverge so widely from those of other observers that they cannot yet be accepted.

Jacobson,[10] by injecting influenza bacilli with

[8] Pfeiffer: *Loc. cit.*

[9] Perez: Die Influenza in chirurgischer Beziehung. Deut. Zeit. f. klin. Chir. Bd. 59, etc.

[10] Quoted from Isambert: Hémo-Cocco-Bacillémie Thèse. Nancy, 1901.

streptococci, and Slatineano,[10] by injecting them with lactic acid, claim to have obtained virulent cultures capable of killing animals alone.

(*b*) Agglutinative experiments: It is possible in patients with influenza bacilli in the sputum to get clumping of the bacilli suspended in normal salt solution, when these suspensions are mixed in low dilution ($\frac{1}{10}$ or $\frac{1}{30}$) with their blood serum. The results are very inconstant, the necessary dilution is low and in a series of such experiments I found that the blood serum of apparently healthy individuals at times gives the same result. Jehle[11] and Meunier[12] likewise obtained negative reactions. Cantani[13] claims positive results, but his work has not been confirmed.

(*c*) Human infection. Pulmonary: In spite of the negative results of animal inoculation, the impression is irresistible that the influenza bacillus is pathogenic for man, when, in sputum preparations or in stained sections from the lungs of patients who have died of bronchopneumonia, the bacilli are found in enormous numbers, both within and without the cells, to the practical exclusion of other organisms. The pulmonary tract is, however, rarely the site of pure infections and therefore does not afford the most convincing proof of pathogenesis.

(*d*) Extra pulmonary: Within the past few years, the influenza bacillus has been found as the apparent sole infecting agent in several extrapulmonary regions. Heyroosky[14] obtained pure cultures of the influenza bacillus from the pus of acute suppurative cholecystitis. Albrecht and Ghon[15] found influenza bacilli as the only organism in the exudate from a phlegmonous inflammation of the arm. In Meunier's[16] case of osteo-periostitis of the femur, the influenza bacillus was the only organism found. Cases have been reported by E. Frænkel,[17] Meunier[18] and Nauwerk[19] in which the influenza bacillus appeared as the sole apparent cause of meningitis.

In man, therefore, the influenza bacillus must be regarded as capable of setting up pathogenic processes without the aid of other organisms.

B. *Specificity.* — The influenza bacillus must be regarded as the most important cause of a large number of cases of respiratory infection (acute and chronic) during the interepidemic periods, and as a contributing cause in many other cases, when found mixed with the pneumococcus, the micrococcus catarrhalis and other organisms. The cases in which it exists as a practically pure infection present no clinical or pathological difference, so far as my small number of cases shows, from the respiratory infection with other organisms and without association with influenza bacilli. The influenza bacillus behaves in this respect like any other of the common respiratory parasites. In the interepidemic period, the clinical diagnosis of "influenza" is often unconfirmed by the finding of influenza bacilli in the sputum in which other organisms than influenza bacilli may be found as the apparent sole cause of the process. The clinical course of cases associated with influenza bacilli does not seem to differ from that of infection with other organisms. Variations in the severity of onset and the amount of prostration are common to them all and do not seem to be more marked in the infections with influenza bacilli than in the cases where these organisms cannot be found. The pulmonary sequelæ, such as bronchopneumonia, abscesses and induration, do not seem to differ materially in these various infections.

Patients may carry the influenza bacilli in enormous numbers for years in their sputum, just as they have been shown to carry other common representatives of the flora of the respiratory tract. In the larger proportion of such cases it is impossible to fix the onset of the disease in an acute attack and many of them seem to have begun insidiously.

The bearing of these observations on the etiology of epidemic and pandemic influenza seems to admit of at least two speculations:

We may, on the one hand, suppose that the extraordinary prevalence of influenza bacilli in the interepidemic period serves to bridge the gap between recurring epidemics and pandemics of the disease. It may be that widespread outbreaks of the disease only occur in the presence of far more virulent organisms than are represented in these interepidemic infections. Our means of testing the pathogenesis of the organism are thus far defective, our knowledge of immunity in influenza and the possible influence of meteorological conditions are very meagre.

On the other hand, however, it is possible that other respiratory organisms are capable of causing widespread respiratory infection. In the interepidemic period, the micrococcus catarrhalis and the pneumococcus seem to cause similar clinical symptoms, an equal degree of prostration and the same pathological changes in the lung. In the interepidemic period, therefore, the clinical disease Influenza appears not to have an etiological unity. It may be also that during epidemics and pandemics of the disease, other organisms than the influenza bacillus play an important part.

VIII. IDENTITY OF THE INFLUENZA BACILLI FOUND IN THE INTEREPIDEMIC PERIOD WITH THOSE DESCRIBED BY PFEIFFER.

The organisms found in these cases with cough and expectoration in the interepidemic period do not differ in biological characters from the organism so excellently described by Pfeiffer in 1892. They are minute Gram decolorizing organisms, usually appearing as short bacilli, at times with the appearance of bipolar staining. In smear preparations stained with dilute carbol-fuchsine or Lœffler's alkaline methylene blue, they are found free in the spaces between the cellular elements or within the protoplasm of the leucocytes.

[11] Jehle: Zeit. f. Heilkunde, 1901, 22, 3 Abth., p. 190.
[12] Meunier: Arch. gen. de méd., Feb. and March, 1897.
[13] Cantani: Zeit. f. Hyg. u. Infectke, 1903, xliii, 505–552.
[14] Heyroosky: Wiener klin. Woch., 1904, No. 23.
[15] Albrecht and Ghon: Zeit. f. Heilkunde, Bd., xxii, 1901, Abth. f. Path. Anat.
[16] Meunier: Compt. rend. Soc. de Biol., 1900, p. 5.
[17] Frænkel: Zeit. f. Hygiene, 1898, xxvii, p. 315.
[18] Meunier: *Loc. cit.*
[19] Nauwerk: Deut. med. Woch., 1895, No. 25, p. 396.

Their number varies from a few organisms, far outnumbered by other bacteria, to countless numbers in almost pure culture. If small purulent masses are carefully separated from the sputum and washed in sterile salt solution or bouillon, and this washed sputum is smeared on blood-agar tubes, minute dewdrop-like colonies are found often only with the aid of the hand lens after twenty-four to forty-eight hours in the incubator. The colonies show most plainly in the neighborhood of colonies of other organisms developing on the surface of the blood-agar. They thus grow most luxuriantly about colonies of staphylococcus pyogenes aureus, a biological peculiarity first described by Grassberger.[39] The colonies thus growing in symbiosis are more opaque and granular than when the organism grows in pure culture, and it is probable that a failure to recognize this different type of colony explains to some extent the infrequent finding of influenza bacilli. In pure cultures, the bacilli not infrequently fail to develop after several generations, but in symbiosis with the staphylococcus aureus transplantation may be indefinitely continued and abundant growths obtained. Transplantation from the larger and more opaque colonies growing in symbiosis with the staphylococcus always succeeds in reproducing the minute dew-drop colonies of Pfeiffer's description, if the succeeding culture is pure.

No growth is obtained on plain agar without blood.

In their viability and temperature optimum these bacilli conform in all respects to Pfeiffer's organisms. They are also identical in their non-pathogenic effect on animals.

Variation in the morphology of the bacilli may be observed on different media and with the age of the culture, but from pure cultures of such divergent types of the organism, a reversion to the typical form can be observed after transplantation to more favorable conditions.

The influenza bacilli in these cases, occurring outside of an epidemic of influenza, are, so far as our present knowledge goes, identical in their biological characters with the influenza bacilli described by Pfeiffer.

CONCLUSIONS.

1. Of 186 non-tubercular infections of the respiratory tract, observed clinically, for the most part, bronchitis:

(*a*) A mixed infection with various organisms has been found in 120 (64%).

(*b*) A comparatively pure infection with one group of organisms was found in 66 cases (36%).

Of these pure infections those due to influenza bacilli comprise the largest group, with a smaller number of cases of pure infection with the pneumococcus, micrococcus catarrhalis, etc.

2. The pure infections, however, tend to become mixed, as the case progresses, and the observer must then remain in doubt, in the presence in the sputum of two or more groups of organisms, as to the relative importance of any one of the infecting agents.

3. In the clinical picture, the symptoms of onset, the course and duration of the different pure infections, there seems to be nothing distinctive. They all tend to set up diffuse or local bronchitis and a varying degree of bronchopneumonia. The amount of prostration may be as great in one as in the other.

4. The pathological picture in cases of bronchopneumonia, due to the different organisms, likewise seems to be similar in the character of the exudate, its varying extent and intensity and the tendency, in a small proportion of cases, to end in permanent damage to the pulmonary substance.

5. These results of pulmonary invasion are not infrequently mistaken clinically for pulmonary tuberculosis. Of 85 cases of pneumonia, associated with various organisms, well marked localized pulmonary abscesses or induration or both, were found in 8. No tuberculosis could be demonstrated at autopsy.

6. From the clinical resemblance of such cases to pulmonary tuberculosis, the presence of the tubercle bacillus in the sputum must be regarded as the only infallible indication of this condition.

[39] Grassberger: Beitrage zur Bakteriologie der Influenza. Zeit. f. Hygiene, 1897, 25, p. 453.

New Instrument.

KNIFE AND BLUNT DISSECTOR COMBINED.

BY J. C. COLLINS WARREN, M.D., BOSTON.

THE advantages of a blunt instrument in separating loose tissue in the neighborhood of vascular parts are apparent to all surgeons who are accustomed to use a blunt dissector. When that is not at hand the handle of the scalpel is a frequent substitute, the instrument turning easily in the hand of the operator. The knife handle is, however, usually too thick to be well adapted for this purpose.

It occurred to me some time ago to have an appendage made to the handle to overcome this objection. The result is the instrument here depicted which has been made for me by Mr. Given of Codman & Shurtleff. The "dissector" may be made of any shape or thickness desired, and I have had made some patterns that are much thinner than the usual blunt dissector, and others that have been slightly curved so as to push easily under a large vessel. By turning the instrument on edge the vessel can then be clamped before dividing it.

The instrument facilitates dissection in confined spaces such as the neck, the pelvis, or the axilla. I have found it most useful in the latter region in operations for the removal of the breast. It can also be used with advantage in separating the bundles of muscular fibers in operations for chronic appendicitis, and indeed in any part of the body where extensive dissections are required, as in the removal of goitre or other large tumors.

Medical Progress.

PROGRESS IN THERAPEUTICS.

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THE TREATMENT OF DIABETES.

I. RELATION OF DIET TO ACETONE.

FATS: Waldvogel[1] showed that the ingestion of 200 cc. of oil in a case of diabetes was followed by an increase of acetone in the urine. Lépine[2] obtained a like result with cream, while Schwartz[3] noted an increase after giving butter, bacon and beef fat. Schwartz has studied the subject with especial care, and in view of these results warns against the administration of unlimited amounts of fats in diabetes. He thinks, however, that in general patients with diabetes mellitus stand even large amounts of fat (150–200 gm.) without disturbance, in spite of the increase of acetone. He notes that in many patients the initial rise in acetone after the ingestion of large amounts of fat is followed after a period of one to two weeks by a fall to its original amount. Since carbohydrates limit the excretion of acetone, he recommends the introduction of appropriate amounts of carbohydrates when large amounts of fat are given.

v. Noorden[4] regards the danger from fats as exaggerated. Their influence first begins to be considerable when the amount of fat (butter) exceeds 150 gm. a day. He recommends a thorough washing of the butter to remove the larger part of the lower fatty acids. With Schwartz, he notes the initial increase of acetone bodies following a large amount of fat. In favorable cases, however, the acetone sinks again after eight to fourteen days to its original amount or a lower level.

Joslin[5] has recently made an important contribution to this subject. He believes that the formation and excretion of acetone in health differs from that in diabetes only in degree. He first determined the amount of acetone resulting from starvation in a healthy subject. With this as a control, he administered various fats to the same individual, noting the excretion of acetone. It was found that the excretion of acetone varied with the kind of fat, when it was determined not only in the urine but also in the breath. Examination of the stools showed that the different fats are note qually absorbable, which in part explains their failure in some instances to produce acetonuria. "Neutral fats, whether of the lower or higher fatty acids, do not increase the elimination of acetone in a healthy individual during starvation for two days. The glycerine which such fats contain serves to prevent the acetonuria." On the other hand, oleic acid and sodium palmitate produced a marked acetonuria. Palmitic acid and stearic acid, however, gave a negative result, the explanation of which seemed to be their poor absorption. Butyric acid, which was well absorbed, did not increase the acetonuria.

Ash-free Diet: Taylor,[6] experimenting on himself, noted the effect of a withdrawal of salts from the diet. His daily ration consisted of 70–75 gm. of protein, 120 gm. of fat (a native olive oil) and 200 gm. of sugar. This contained less than .100 gm. of salt in the form of calcium sulphate and phosphate, with a caloric value of 2,250. On the ninth day of the experiment, a strong odor of acetone was noted in the breath and notable quantities of acetone and diacetic acid in the urine. In this case he suggests that the absence of salts from the diet led to the acidosis from the withdrawal of alkaline metals, or cathions, from the body. In diabetes the conditions may be the same. Diuresis may lead to the elimination of salts and cathions, producing acidosis as in his experiment.

II. CONTROL OF ACETONURIA.

Naunyn[7] recommends in the treatment of acidosis enough sodium bicarbonate to keep the urine slightly alkaline. For this purpose, 50 gm. or more in twenty-four hours may be necessary. In severe acidosis, he advises the administration of carbohydrates, allowing besides 60–80 gm. of bread, up to one-half a liter of milk and as much as 200 gm. of fruit, to avoid disturbance of digestion. An initial increase of the acetone reaction may be due to the alkalinity of the urine. The ferric chloride reaction may also be more intense during the first few days. When the urine becomes black on the addition of ferric chloride, he advises milk in the diet, with a diminution of the meat in proportion to the caloric value of the milk. If the general condition is still undisturbed, the ferric chloride reaction may gradually become less intense. If signs of coma intervene, all limitations of the diet must be stopped and then milk is regarded as the best diet.

v. Noorden,[8] in these cases, formerly recommended an exclusive milk diet, but is now convinced that the acetonuria is better and more quickly controlled by large amounts of oat soup. One may, however, still choose between the two methods. He advises the use of either milk or oats alone; not both at the same time. When a quick result is necessary, he recommends Naunyn's 3 to 3½% soda solution to the amount of one third to three quarters of a liter for each intravenous injection. In the less severe cases, he gives 5 to 6 gm. of sodium bicarbonate every two hours, by mouth.

III. REDUCTION OF GLYCOSURIA.

Albumen: Cantani[9] was one of the first to recognize the relation between the amount of albuminous food in the diet and the excretion of sugar. He noted, on large amounts of albuminous food, a greater excretion of sugar. Aglycosuria followed its reduction.

[1] Waldvogel: Zeit. f. klin. Med., 1900, xxxviii.
[2] Lépine: Semaine méd., 1901, xxi.
[3] Schwartz: Deut. Archiv. f. klin. Med., 1903.
[4] v. Noorden: Wiener. med. Presse, 1902, No. 40.
[5] Joslin: Journal of Medical Research, October, 1904.
[6] Taylor: University of California Publications. Pathology, 1904, vol. 1, No. 7, pp. 71–86.
[7] Naunyn: Deutsche Klinik, 1901.
[8] v. Noorden: Leyden's Handbuch der Ernährungstherapie, 1904.
[9] Cantani: Le Diabète Sucré, translated by Charret. Paris, 1876.

An increased elimination of sugar in the urine after the ingestion of large amounts of albuminous food has been still further emphasized by Naunyn,[10] Lenné,[11] Kolisch [12] and v. Noorden.[13]

v. Noorden [13] regards the unrestricted administration of albuminous food to diabetics as unnecessary and even harmful. Following the ingestion of an unlimited proteid diet, representing 200 gm. to 260 gm. of albumin, the nitrogen of the urine may amount to 30 gm. to 40 gm. per day. He thinks that the tolerance for carbohydrates on this diet is much less than when a smaller amount of albumin is given. In confirmation of this he cites a case in which a diabetic of fifty years of age excreted on a low albuminous diet, plus 100 gm. of bread, 12 gm. to 15 gm. of nitrogen and traces of sugar in the urine. In the following week, the patient took so much albuminous food that the nitrogen in the urine rose to 28 gm. to 32 gm. On this diet the sugar increased to 15 gm. The patient again returned to the earlier diet with aglycosuria as a result.

Bearing these observations in mind, v. Noorden [14] advises the administration, in mild cases, of somewhat more albumin than in health,— about 120 gm. to 140 gm. to adults and 90 gm. to 100 gm. to children and old patients. In severe cases, when the sugar is eliminated from the urine with difficulty or not at all, he reduces the albumin to 70 gm. to 90 gm. giving 50 gm. to 90 gm. for two weeks, then 100 gm. to 120 gm. for an equal period.

Lenné [15] advises a diminution of albumin in the diet until the nitrogen of the urine reaches what he considers normal — .37 gm. per kgm. body weight in twenty-four hours. He lays stress also on keeping patients on a minimum of food.

Concerning the kind of albumin, v. Noorden [16] draws up the following scale from the study of more than twenty patients: White of egg seems least likely to cause glycosuria. Then follows, without great differences, vegetable albumin, casein, whole egg and muscle albumin. Isolated cases, however, behave differently, and the individuality of the patient is of more importance than the kind of albumin. In these experiments, he made the striking and hitherto unrecognized observation that less glycosuria results from the administration of single albuminous substances than from the mixture of two kinds: On a pure meat diet, a young diabetic excreted 20 gm. of sugar; on a pure white of egg diet, 8 gm. of sugar; but when the diet was changed to one-half white of egg and one-half meat, the sugar mounted to 30 gm. In practice, he regards such results of little importance, since the general condition of the patients did not seem to improve on the single diet and they soon became tired of such restrictions.

Drugs: Kaufmann,[17] working in v. Noorden's clinic, tested the effect of various drugs on the excretion of sugar. The observations, 109 in number, were made on patients who, with few exceptions, were under treatment in the hospital. The effect of dietetic treatment on the glycosuria was carefully excluded. The number of cases was large enough to minimize the element of chance. The literature is extensively reviewed.

He concludes that the majority of drugs recommended for diminishing glycosuria are worthless, either because their influence is slight or doubtful. Among these are chloral hydrate, piperazin, iodine preparations, arsenic, quinine, methylhydrochinon, myrtillus, linseed-tea, bean-shell-tea, alkalies, lime salt, uran salt, ammonium salt, pancreas and liver preparations, cocaine, pilocarpin and ergotin.

The patient medicines, glykosolvol, saccharosolvol and antimellin, also seemed to be worthless.

Antipyrin, carbolic acid and sublimate were perhaps of some service, but of doubtful value, because of their unfavorable effect on the general system or the danger of poisoning, when long continued.

Bromide of potash and Carlsbad water were for the most part without influence, but still worth recommending if specially indicated.

An evident influence on the glycosuria was obtained with opium, salicylic acid and its derivatives, while extract of jambul was in some degree useful.

The indication for the use of these preparations is defined as follows:

Opium: From twelve experiments with opium, he regards its use in mild cases as unnecessary. Dietetic treatment usually succeeds in these patients and the long duration of the disease makes opium dangerous. In severe cases, however, opium may succeed in obtaining aglycosuria, when the diet has failed. In the presence of such complications as neuralgia, neuritis, cataract and amblyopia, their improvement may be much more quickly accomplished when the last traces of sugar are eliminated from the urine. Then too, as v. Noorden has observed, the strict diet in severe diabetes may be better borne and longer continued when opium is used. This result cannot be counted on with certainty, however, at least with small or medium doses.

Salicyl preparations: Salol was not used. Aspirin is regarded as superior to sodium salicylate. Twenty-nine experiments were made. Of 18 cases with severe glycosuria, no result was obtained in 11, in 5 it was inconsiderable or doubtful and in only 2 was there a noteworthy gain. On the contrary, in 11 cases of mild diabetes, only one showed no improvement, while in two the result was doubtful. In the remaining 8 cases there was considerable diminution of the sugar. In the study of these 8 cases it was shown that the glycosuria diminished or disappeared and that the salicylic acid accelerated and assisted the dietetic prescriptions. In 3 of these cases, there was a persistence of the good effect of the drug and in 4 a considerable increase of tolerance.

Jambul: Extract of jambul was used in 7

[10] Naunyn: Nothnagel, Spec. Path. u. Ther., vii, Bd. i, p. 136.
[11] Lenné: Verhand. des Congress. f. innere Med. 18, 1900.
[12] Kolisch: Wiener klin. Woch., 1900, No. 52.
[13] v. Noorden: Wiener med. Presse, 1902, No. 40.
[14] v. Noorden: Leyden's Handbuch d. Ernährungstherapie, 1904.
[15] Lenné: Congress. f. innere Med., 1900.
[16] v. Noorden: Wiener med. Presse, 1902, No. 40.
[17] Kaufmann: Zeit. f. klin. Med., xlviii, 1903.

experiments. In two observations there was no result. In three it was insignificant, while in two its action was decisive. The exact indications for its use cannot be determined.

In general, Kaufmann concludes that drugs fall far behind and are only useful in conjunction with the dietetic treatment of diabetes.

Oat Cure: v. Noorden [18] mentions some striking results which he obtained in cases of diabetes in which on ordinary diet he was able to get the urine sugar-free only temporarily or not at all. "In very many, especially severe cases of diabetes, oats were borne at least twice as well as the equivalent amount of bread."

In a second report,[19] he speaks of his experience with this treatment in upwards of 100 cases, with a very good result in more than ten.

Technique: Oatmeal (Knorr's) or oat groats (Hohenlohe) are boiled in water for a considerable time, with the addition of a little salt. During the boiling, butter and some vegetable albumin are added. Roborat or rice albumin is commonly used. The latter is preferred because of its more pleasing taste. After cooling, the beaten white of egg is added.

At the beginning of the cure he gives daily: 250 gm. of oats, 100 gm. of albumin and 300 gm. of butter.

The soup thus made is given every two hours. A little brandy, wine or strong black coffee may also be added.

No statistical study of the cases is made, but five are detailed as an illustration of the method. In the first case, a patient of eighteen years, the symptoms of diabetes preceded entrance for a half year. Under a strict diet, excluding "vegetable days," the average amount of sugar was 50 gm., acetone amounted to ½ gm. to 2 gm. and ammonia to 1½ gm. to 3 gm. Under the oat cure which was continued for ten days, the sugar and acetone sank and finally disappeared. On a return to the usual mixed diet, the sugar again temporarily reappeared, but he was able to give the same diet, which before the treatment led to 50 gm. of sugar and even to raise the amount of carbohydrates without causing glycosuria. The patient was discharged on April 25, 1903, and on a carefully regulated diet remained sugar free, with only normal traces of acetone to the date of writing, September, 1903. In a second case with symptoms of approaching coma, the oat cure was followed by temporary improvement and seemed to ward off the threatened attack. In a third case, the oat diet was followed by a diminution of sugar and acetone, but full aglycosuria was not obtained. No increase of tolerance was produced. The fourth patient reacted unfavorably to the cure, showing an increase of sugar excretion. There was no increase of tolerance, and in the further observation of the case, the ordinary strict diet seemed to give better results. The fifth patient was a mild or medium case of diabetes. Under the ordinary strict diet, the sugar was reduced to traces in the urine, but this case, likewise, did badly on the oat cure. In general, in his experience, the mild cases without diacetonuria do badly and usually lose in tolerance for carbohydrates if this treatment is continued.

v. Noorden recommends a trial of the method, but warns those who use it that "a few are actually benefited, in some no advantage ensues and in a still greater number serious injury may result." In this conservatism, he hopes to save the oats from being considered a universal cure.

Sigel [20] reports the use of v. Noorden's oat cure in four cases of severe diabetes. The sugar was either diminished or not increased in proportion to the added quantity of carbohydrate in the diet. In three cases, the acetone diminished or disappeared, while in the remaining patient, though the sugar diminished, acetone continued and the patient died in coma.

J. Strauss [21] cites a case from v. Noorden's private practice in which the oat cure was used. In this case on a strict diet the sugar sank to 32 gm. Under the oat cure the glycosuria still further diminished to 4 gm. and after two "vegetable days" to a trace. The acetonuria sank from .38 gm. to 1.39 gm. to a trace, but with the continuance of the treatment rose again with the appearance of the ferric chloride reaction.

L. Mohr [22] regards the oat cure as the best means we have to combat a severe grade of acidosis.

[18] v. Noorden: Wiener med. Presse, 1902, No. 40.
[19] v. Noorden: Berliner klin. Woch., Sept. 7, 1903.

[20] Sigel: Berl. klin. Woch., January, 1904.
[21] J. Strauss: Deut. med. Woch., Nov. 3, 1904.
[22] L. Mohr: v. Noorden's Sammlung klinischer Abhandlungen über Pathologie und Therapie der Stoffwechsel- und Ernährungsstörungen, 1904. (Quoted from Strauss, *vide* 21.)

Reports of Societies.

DEPARTMENT OF HEALTH, AMERICAN SOCIAL SCIENCE ASSOCIATION.

THE following are abstracts of the papers presented at the meeting, held in Boston May 12, 1905, S. H. DURGIN, M.D., Chairman; H. W. HILL, M.D., Secretary.

CREMATION OF THE DEAD.

DR. JAMES R. CHADWICK, after presenting in considerable detail, an historical review of cremation, showed that it was a custom among the ancients, and approached his subject from three standpoints: the economic, the hygienic and the sentimental. From a wealth of convincing evidence, it seems certain that cremation should be and is rapidly becoming known as the proper way to dispose of the dead.

INDIVIDUAL FACTORS IN HYGIENE.

DR. RICHARD C. CABOT said: There are three sets of individual factors in hygiene: (1) Those depending on what one wants to get out of life; (2) those depending on the race, climate, age and sex of the individual; (3) those depending on the individual peculiarities of one's tissues. General rules can be laid down not for everybody, but for different classes of individuals, each person being classified according to the three sets of individual factors above mentioned.

It is Dr. Cabot's intention in the near future to attempt such a classification as suggested, obtaining his statistics from at least 50,000 apparently healthy individuals.

DANGERS TO THE HEALTH OF EMPLOYEES IN INDUSTRIAL ESTABLISHMENTS.

Dr. Lewis M. Palmer stated that the Massachusetts Legislature of 1904 passed a resolve directing the State Board of Health to investigate the sanitary condition of factories, work shops and other places of employment within the Commonwealth "with respect to all conditions which may endanger life and limbs or be prejudicial to the health of the persons employed therein." He having been appointed Sanitary Inspector under the above act, investigated one hundred of the largest manufacturing establishments in Eastern Massachusetts, employing a total of approximately 70,000 hands, those industries being selected in which the greatest percentages of deaths occurred according to the vital statistics of this and other countries. In the cigar industry in particular, he had found two nasty customs: first, the biting off of the end of the cigar and the wetting of the fingers with saliva from the mouth to aid in finishing up the end of the cigar neatly; second, after the loose pieces of tobacco upon the floor had been spit upon and walked upon all day with shoes covered with dirt from the streets and filth from the water closets, these pieces were gathered up at night and sold again to be used as filling for cheaper cigars. The paper concluded with the statement that those manufacturers who have improved the sanitary conditions under which their employees work have come to believe that it has paid them to do it.

THE HISTORY AND RESULTS OF FOOD LEGISLATION IN MASSACHUSETTS.

Dr. Charles Harrington spoke as follows: The Massachusetts Legislature of 1882 passed an act relating to the adulteration of food and drugs, which provided that the State Board of Health should take steps to investigate the food and drug supply, should make rules and regulations regarding the collection and examination of samples, and should establish standards in cases not specifically provided for. The market at this time was in a deplorable condition, the first report of the analyst showing a total average of 77% of all samples examined to be adulterated. The records of the State Board of Health show that since the beginning of the work about 90,000 samples of milk, 60,000 samples of foods other than milk and about 15,000 samples of drugs have been examined, a total of about 165,000 samples. Up to Sept. 30, 1904, a total of about 1,800 cases have been prosecuted all but a few of which resulted in conviction, more than $42,000 having been paid in fines. Under the work of the Board, the food supply has undergone a vast improvement with a saving to the consumer of many times the sum expended in bringing this condition about.

SOIL DAMPNESS AND ITS INFLUENCE ON THE DISEASES OF RESPIRATION.

Dr. Henry J. Barnes said that the diseases of respiration are sufficiently common and flourish under such varied conditions as to render it impossible for one to come to any definite conclusion regarding the effect of dry or damp soils in any kind of climate. It is evident, however, that an excessively dry air which nature nowhere provides, but which is artificially created in winter within doors, lowers the relative humidity to an extent sufficient to impair the resisting powers of the mucous membrane lining the respiratory tract, this factor undoubtediy increasing the prevalence of respiratory diseases in cold weather.

THE IMPORTANCE TO SOCIETY OF RESEARCH INTO THE CAUSES AND ANTECEDENTS OF DISEASE.

Dr. Theobald Smith said: The study of causes and antecedents is of fundamental importance in medicine as in other departments of human inquiry. The knowledge of causes leads to the treatment of them rather than of their effects. Our efforts are thereby directed largely to the future rather than to the immediate present which simply registers the effect and is frequently beyond help. We have seen that for society to control causes of disease is infinitely less burdensome than to try to palliate effects. This preventive medicine is really the medicine of the social organism, the people's medicine, as contrasted with the treatment of the individual which often requires resources beyond our reach, because the momentum of disease to be resisted has become so great when it has once manifested itself in the individual. Over and above the task of studying disease is the one which applies the results of such study to everyday life. With this application, ethical problems appear. Science merges into art and practice, and the student of medical science must share responsibilities with all those whose function it is to watch over the welfare of the individual and of society and to harmonize their frequently conflicting interests.

Recent Literature.

A Manual of General Pathology for Students. By Sidney Martin, M.D., F.R.S., F.R.C.P., Professor of Pathology at University College; Physician to University College Hospital, London. Philadelphia: P. Blakiston's Son & Co. 1904.

In his attempt to give in a short space a clear account of the processes of disease, the author has achieved a notable success. He is a well-known English pathologist and clinician, and his textbook deserves a hearty welcome by American teachers of pathology and students. It covers about the same ground as Lazarus-Barlow's volume on general pathology. Unlike the German treatises of Ziegler and Ribbert on general pathology, the English works do not deal chiefly with general alterations of structure, but with disturbances of function. In other words they are textbooks of pathological physiology, and their scope and character are somewhat similar to that of Krehl's *Pathologische Physiologie.* They treat of those aspects of the subject which are of greatest interest and importance to the clinician. Singularly enough the author does not mention the classical work of Krehl, nor has he availed himself of the wealth of material contained therein. This work, however, contains much of value not to be found in American or other English textbooks on pathology. It is concise, yet clear and comprehensive.

As the processes of disease are dealt with rather than the structural changes in disease, some knowledge of morbid histology and anatomy is presupposed. The subject of infection occupies 140 pages. The chapter on pyrexia is interesting, but inadequate. Among the best sections are those dealing with the chemical products of bacteria and the disturbances of metabolism. Considerable space is devoted to fibrosis. The

author adheres to the old view that in cirrhosis of the liver and sclerosis of the kidney the growth of connective tissue is the primary change. The theory of Weigert, now generally accepted, that the growth of fibrous tissue is secondary to degeneration of the parenchyma, is not mentioned. None of the recent work on fatty degeneration has been incorporated. The illustrations are good and all but a few are original. The book is well printed on good paper and attractively bound.

Saunders' Question-Compends. Essentials of Bacteriology, being a Concise and Systematic Introduction to the Study of Micro-organisms. By M. V. BALL, M.D. Fifth Edition, thoroughly revised by KARL M. VOGEL, M.D., Assistant in Pathology, College of Physicians and Surgeons, Columbia University, New York City. Saunders' Question-Compends, No. 20. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

As this compendium has been revised or reprinted seven times, it has evidently supplied a want. In this small work of 235 pages, no less than 43 pages are devoted to tables of the "chief characteristics of the principal bacteria." The list includes over 200 non-pathogenic micro-organisms, and many bacteria supposed by their discoverers to be pathogenic, but whose disease-producing properties have never been observed by subsequent investigators. For example, here one finds *Bacillus malariae* which Klebs and Tommasi-Crudeli claimed, in 1879, to be the cause of malaria. Elsewhere in the volume is a good account of the real malarial parasite.

The description and picture of Nivellier's leveling and cooling apparatus and the moist chamber with the old-fashioned plates on benches might well be omitted as they have only historic interest. The illustration of the comma bacillus on page 126 and that of the tubercle bacillus on page 98 should be credited to V. O. Vierordt.

The editor of the present edition has inserted good notes on the paratyphoid bacillus, immunity, and the newer methods of staining blood.

Gallstones and their Surgical Treatment. By B. G. A. MOYNIHAN, M.S. (Lond.), F.R.C.S. (Leeds). Fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Mr. Moynihan has given us a book on this interesting subject. He considers the etiology, pathology, clinical manifestations, and operative treatment of gallstones, and thoroughly appreciates the importance of operating on gallstones. The book is admirable for it is clear, concise, and from an operative standpoint, judicial. We regret that the precise indications for operation are not more explicitly stated, and it is quite possible that this is too much to ask at present, for operative surgery has, by force of circumstance, seized the gall bladder and bile ducts. Sometime a judicial consideration of the subject will be presented and we shall be told when not to operate. The book is well printed and admirably illustrated.

Essentials of Nervous Diseases and Insanity; their Symptoms and Treatment. By JOHN C. SHAW, M.D. Fourth edition, thoroughly revised by SMITH ELY JELLIFFE, M.D., Ph.D. 12mo. pp. 196, with 53 illustrations. Philadelphia: W. B. Saunders & Co. 1904.

This little volume, one of Saunders' Question Compends, has been considerably altered and somewhat re-arranged since the first edition appeared in 1892, but it has not been enlarged. The section on mental diseases has been practically rewritten to conform to the newer ideas and to Kraepelin's classification. Various changes have been made elsewhere to bring the work more up to date. The attempts at a bibliography to the various sections are very defective and might well be omitted. The book is fairly trustworthy, so far as it goes, but these condensed epitomes seem, on the whole, too inadequate for practical work.

Surgical Emergencies. — The Surgery of the Abdomen. Part I. Appendicitis and Other Diseases about the Appendix. By BAYARD HOLMES, B.S., M.D., Professor of Surgery in the University of Illinois, etc. New York: D. Appleton & Co. 1904.

This work of 350 pages is a treatise mainly devoted to the subject of appendicitis. In the introductory chapters the relative frequency of appendicitis in abdominal affections is discussed and the anatomy and clinical pathology described. Then follow chapters devoted to the symptomatology, the clinical course of the lesion, the so-called complications, the diagnosis and the treatment. The concluding chapters deal with peritonitis, intussusception, perforating typhoid ulcer, and intestinal carcinoma. The text is illustrated by thirty-nine cuts and seven plates, mostly colored.

The book is interestingly written and contains much information of this dangerous lesion. Clinical records are frequently quoted to confirm the statements of the writer. The discussion of the subject is an extended one and it is presented to the reader in all its aspects. Dr. Holmes considers that the diagnosis of appendicitis is always a relative one and can never be absolute till the appendix is exposed by operation and that the surgeon should hasten with a relative diagnosis to undertake the positive relief of the most probable condition rather than face the dangers of a delay sufficient to establish a positive diagnosis. He claims that the greatest stress must be placed upon the clinical history of a case in making a diagnosis and states that the physical examination rarely results in very marked or very absolute findings. Yet he devotes four and a half pages to the facts to be obtained from such an examination. He considers appendectomy the only treatment for appendicitis. He cauterizes the stump with carbolic acid and inverts it into the cecum, fixing it with a purse-string suture. The chapter on peritonitis is an interesting one, especially the subject of treatment.

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THE FUNDUS OF THE EYE IN DISEASES OF THE NERVOUS SYSTEM.

THE retina, on account of its histological structure, is so intimately related to the nervous centers that a central pathological change very rapidly involves this region. Examination of the fundus of the eye becomes from this fact a most useful adjuvant in the diagnosis of nervous diseases, especially so from the fact that they are frequently complex. The changes which the papilla undergoes are variable. There is an optic neuritis when congestion is present, while in acute inflammatory processes the papilla is cloudy. On the other hand when a process of sclerosis is going on, atrophy of the optic nerve results, which is made evident by the bright white or bluish tint of the papilla. Papillary edema is a manifestation of intracranial compression. All may be summed up in three lesions, namely: optic neuritis or perineuritis, papillary atrophy and papillary stasis.

In a recent thesis Galezowski has studied the condition of the papilla in nervous diseases in general. During tabes the lightening pains, loss of the patellar reflex or gastric crises precede the ocular troubles in some cases by only a few months, while in others it may be by several years. A patient who has arrived at the period of ataxic ineo-ordination may still develop atrophy of the optic nerve, but it cannot be affirmed that atrophy of the papillæ is very much more frequent in the pre-ataxic period of tabes.

The ophthalmoscope will in the first place show a decoloration of the papilla; it loses its reddish rose tint and becomes a light rose color, and then the coloration becomes progressively weaker until it reaches the stage of complete white atrophy. Marie and Lœri have recently shown that amaurosis will then probably take place within six or eight months or at least in one to two years at the longest. Both eyes are not necessarily involved at the same time so that complete blindness may not result for several years. When the atrophy is complete, the papilla is a brilliant white, similar to mother of pearl; it keeps its rounded shape, and its borders are very distinctly defined against the red fundus which surrounds it. The vessels appear redder than normal. Patients who have a beginning tabetic atrophy of the optic nerve must necessarily become blind, inasmuch as nothing will prevent the progressive course of the affection. According to Galezowski, mercurial treatment will occasionally produce some improvement, but in order to attain this result the doses must be pushed to the extreme.

In 1903, Abadie advised intravenous injections of cyanide of mercury, but potassium iodide gives deplorable results according to de Wecker, Dor, Grandclément and others. During the progress of multiple sclerosis and hereditary ataxia, the papillary lesions take on about the same characters.

Papillary stasis is caused by intracranial pressure, cerebral tumors and tuberculous meningitis. Stasis may be the first sign of a tumor of the brain, or it may appear after the beginning of symptoms due to the growth. In most cases the papillary lesion is bilateral. During their evolution the lesions pass through several stages. The papilla, which in the first place is rose color, becomes red and is confounded with the surrounding retina. The veins appear dilated, gorged and tortuous. The papilla soon becomes more distinctly outlined and projects outward. Its diameter may become twice the normal, and later on in the process it takes on the shape of a rosette, while the vessels become covered by a light edematous grayish veil, but the veins remain dilated and tortuous. It is curious to verify the decompressive action of lumbar puncture in these cases. The edema and projection of the papilla are diminished after a few cubic centimeters of the cerebrospinal fluid have been removed.

As in tabes, papillary atrophy has been observed during the progress of diffuse encephalitis. Optic neuritis and perineuritis are more infrequent and are especially met with in acute tuberculous and cerebrospinal meningitis. In these affections the lesions of the papilla have no importance as far as diagnosis is concerned, because they are merely secondary in nature, and the general

picture of the case will rarely leave any doubt as to the true nature of the disease. It should be pointed out, however, that meningitis may produce an atrophy of the papillæ without any inflammatory period, and Galezowsky mentions cases in which this lesion was the only symptomatic indication of a latent meningitis.

REPORTS OF BOSTON INSTITUTIONS.

THE annual report of the Pauper Institutions Department, including the almshouse and hospital at Long Island, for the year ending January 31, 1905, is in our hands. During the year, owing to the resignation of the former board of trustees, the department was under the charge of the Hon. John B. Martin, who in general continued the policy inaugurated by the trustees. It has apparently come to be recognized that the institution has become rather a hospital than an almshouse, and that hospital methods must be more and more adopted in the future if the institution is to fulfil its function for the city. The visiting staff of physicians repeats recommendations made in previous reports, laying particular stress upon the deplorable condition regarding tuberculosis. In spite of the addition of a special hospital for this disease some years ago, the overcrowding has continued and many tuberculous patients are now being treated in the hospital wards under conditions of imperfect isolation. The staff reiterates its opinion that the population of the island is to be placed essentially in the category of the sick rather than of the merely infirm. This means increasing attention to the needs of the hospital. The Mayor appointed a board of trustees during the period of the preparation of the report, three of whom were members of the preceding board. The interruption in management has, therefore, led to no fundamental change in the policy of the institution.

The report of the Boston Insane Hospital Department shows that there were a few less admissions than in the preceding year, but that more patients than ever before were admitted as emergencies. On Dec. 31, 1904, there were 671 patients in the hospital, fairly evenly divided as to sex. Fifty patients were discharged recovered, sixteen much improved, and forty-two improved, or approximately 35% of the entire number of patients. Improvements of various sorts have been made in and about the buildings, and the efficiency of the training school has also received the attention of those in authority. After the report was in type, Dr. Edward B. Lane, superintendent for many years, has resigned, an unfortunate circumstance to which we have previously called attention editorially.

CENTENARY OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF ENGLAND.

ON May 22, the Royal Medical and Chirurgical Society of England celebrates its one hundredth anniversary. The occasion is notable not only because of the long and honorable career of the society and its many contributions to medical science, but also because the society is to receive royal recognition through the presence of the Prince of Wales at the banquet. This ancient society was formed in the May preceding Nelson's last exploit. It was an outgrowth of the Medical Society of London, founded in 1773. This organization had had a single president for twenty-two years, and certain physicians on May 22, 1805, in protest, established what thenceforth became the Medical and Chirurgical Society, with Dr. William Saunders as its first president. Among the names of its founders are those of Sir Astley Cooper, Dr. Matthew Baillie, Dr. William Babington and Mr. John Abernethy. The first volume of the transactions contained an account of Sir Astley Cooper's first case of ligation of the carotid artery. Moved from place to place as the population of London changed, the society has finally found lodgement in Hanover Square, and there has a library of more than forty thousand volumes. Through the hundred years of its existence it has always numbered among its members many of the most distinguished physicians of the time, and it has, therefore, had a very considerable influence in shaping medical progress. In its proceedings, widely known through its long familiar transactions, are contained many pioneer articles on a great variety of subjects pertaining to medicine and surgery. It is natural, therefore, that the coming centenary should excite an interest extending quite beyond the confines of England. Apart from the dignity which comes with age, the society represents the active life of the best minds in the profession during the last century. We have, even in this country, a few medical societies antedating the London Society, but such organizations are not numerous; they should be cherished and should hold a similar place of respect in the minds of the profession. We can ill afford to do away with the traditions which come with years only.

PHYSICAL EXAMINATION OF SCHOOL CHILDREN.

At a meeting of the Society of Medical Inspectors of the Health Department held May 8, Dr. John J. Cronin, Chief of the Division of School Inspection in New York, read an important paper setting forth the results of the first month's work under the new system of physical examination of public school children. Heretofore the inspection of the children had to do exclusively with contagious diseases, while this new system includes disabilities of every kind. It went into effect on March 27, and from that date to April 28, it was found that out of 7,168 children examined, no less than 3,132 (including 1,946 with bad teeth) required medical attention. One of the most striking results shown was the discovery that 1,273, or more than 17%, suffered from defective eyesight; and Dr. Cronin expressed the opinion that the reason so many children are found backward in their studies is because there are so many with physical defects, such as defective sight and hearing, who are unable consequently to keep up with other children of their age and who retard the progress of their classes. He furthermore stated that within the last year the special corps of ophthalmic inspectors had found that about 33⅓% of all children in the schools have defects of vision of sufficient importance to interfere with the proper pursuit of their studies. A considerable number have procured suitable glasses and this has already resulted in an improvement of the school work, as attested by the teachers' reports. It was very desirable, he thought, that funds should be appropriated to carry on the work so well begun, and thus improve as far as possible the physical status of the school children.

MEDICAL NOTES.

Epidemic Cerebrospinal Meningitis in Silesia. — It is reported that during April, 1,200 cases of epidemic cerebrospinal meningitis occurred in Upper Silesia, with a mortality of approximately 50%.

Centenarians. — Mary Loomis, said to have been one hundred years old, died in Hartford, Ct., May 11.

Joseph Lewis, reputed to be one hundred and four years of age, has also recently died in New York. He is said to have been the father of twenty-seven children.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 17, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 15, scarlatina 28, typhoid fever 7, measles 28, tuberculosis 51, smallpox 0.

The death-rate of the reported deaths for the week ending May 17, 1905, was 18.68.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 13, 1905, was 230, against 218 the corresponding week of last year, showing an increase of 12 deaths, and making the death-rate for the week 19.53. Of this number 116 were males and 114 were females; 222 were white and 8 colored; 138 were born in the United States, 85 in foreign countries, and 7 unknown; 49 were of American parentage, 154 of foreign parentage, and 27 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 32 cases and 2 deaths; scarlatina, 37 cases and 4 deaths; typhoid fever, 4 cases and 1 death; measles, 15 cases and no deaths; tuberculosis, 49 cases and 34 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 31, whooping cough, none, heart disease 22, bronchitis 10, and marasmus 3. There were 9 deaths from violent causes. The number of children who died under one year was 31; the number under five years, 57. The number of persons who died over sixty years of age was 50. The deaths in public institutions were 83.

During the week there were 8 cases and 3 deaths reported of cerebrospinal meningitis.

Cerebrospinal Meningitis. — The Board of Health of Newport, R. I., reports one case of cerebrospinal meningitis for the month of April.

Boston as a Place of Meeting for National Societies. — It is a noteworthy fact that during the last three weeks three national societies have met in Boston, namely, the American Otological Society, the American Ophthalmological Society and the American Social Science Association. It is becoming increasingly apparent that the advantages of Boston during the early spring months are becoming more and more appreciated by our various national societies. All of the meetings were very successful; the Department of Health of the Social Science Association, under the Chairmanship of Dr. S. H. Durgin, presented some excellent papers. There were numerous entertainments in connection with these gather-

ings. The American Ophthalmological Association met at the Massachusetts Charitable Eye and Ear Infirmary and was given a luncheon by that institution. The Social Science Association held its meeting at Huntington Hall of the Massachusetts Institute of Technology.

An Island Prison and Leprosarium. — Committees on prison and on public charity institutions in this state have agreed upon a bill providing that Nashawena, an island in Buzzard's bay, be purchased and used for the purpose of a state prison. In addition to this, it is proposed to build a hospital for lepers, where such patients may be treated under the jurisdiction of the State Board of Charity. The recommendation of an island site for a prison was made by Governor Douglas in a special message to the Legislature about a month ago. A reference of this bill to the next Legislature would not be amiss.

NEW YORK.

Last Survivor of War of 1812. — Hyram Cronk, the only pensioner of the War of 1812, who recently celebrated his one hundred and fifth birthday, died on May 13, at his home at Dunn Brook, N. Y.

Tuberculosis among Negroes. — A conference was held under the auspices of the Charity Organization Society, on May 11, for the purpose of forming a committee of leading colored persons, chiefly physicians and clergymen, to assist the general committee of the society in the prevention and treatment of tuberculosis among the negroes of the city. Dr. Andrew H. Smith, ex-president of the Academy of Medicine, presided, and the principal address was made by Dr. S. A. Knopf, who urged that the committee now formed should immediately begin the work of disseminating knowledge concerning the prophylaxis of tuberculosis among the people of their race. He also suggested that they should start a movement among the richer and better class of its members to establish a special sanitarium for negro consumptives.

Improvement of Milk Supply. — Special efforts have of late been made to improve the character of the milk supply of the city, and the New York Health Department and local boards of health in the outlying districts have been coöperating with the State Commissioner of Agriculture to better the sanitary condition of the dairies. One result has been the passage of a bill by the Legislature requiring every foreman of a dairy to have a license from the State. Another gratifying feature of the movement is that nearly all the larger milk dealers in Manhattan and a number in Brooklyn have united to form an "Association for Improvement of the Milk Supply of New York." It is their purpose to coöperate with the Health Department in its work in this field, and the Society has retained the services of Dr. E. J. Lederle, president of the board of health during the Low administration. He will act as consulting sanitarian and analyst, and, together with the executive committee of the association, will represent the latter in its relations with the Health Department.

April Mortality. — The weekly reports of the Health Department show that during the month of April the mortality in the city represented an annual death-rate of 20.29, as against 20.55 in March, and 24.97 in April, 1904. The corrected death-rate, excluding non-residents and infants under one week old, was 19.39. Among the diseases in which there was a decline in mortality were the following: The weekly average of deaths from scarlet fever decreased from 19.5 in March to 10 in April; the weekly average from influenza, from 13 to 4; from pneumonia, from 142.25 to 138; from acute bronchitis, from 36.25 to 34; from diarrheal diseases, from 46.25 to 38.25; from diarrheals under two years of age, from 39.25 to 33; and from Bright's disease and nephritis, from 130 to 118.25. Among the diseases which showed an increased fatality were the following: The weekly average of deaths from diphtheria and croup increased from 31.75 to 33.25; from whooping cough, from 8.5 to 13.25; from epidemic cerebrospinal meningitis, from 91 to 104.25; from cancer, from 57.75 to 64.25; and from organic heart diseases, from 114 to 120. Although there were more deaths from cerebrospinal meningitis in April than in March, there was no one week in the month in which the mortality equalled that of the last week of March, when 131 deaths were reported from the disease.

A Remarkable Gunshot Wound. — One of the most remarkable gunshot wounds on record is reported from the Roosevelt Hospital. The autopsy in the case was made by coroners' physician, Dr. Philip F. O'Hanlon, in the presence of a number of the hospital staff, and he describes the eccentric course of the bullet as follows: It entered the body one-half inch below the last rib on the left side, about two inches from the

spinal column, passing through the left kidney through the posterior wall of the greater curvature of the stomach, through the left lobe of the liver, through the diaphragm and through the pericardium, tearing away a portion of the left ventricle, but not entering the heart cavity. On emerging from the pericardial sac it struck the sternum and rebounded. It then passed again through the pericardium, the diaphragm and the stomach, and was found resting on the hilus of the left kidney, almost at the spot where it entered the body. Not the least remarkable phase of the case was that the patient lived for twelve hours after the reception of the injury.

Officers of New York Post-Graduate Medical School and Hospital. — At the annual meeting of the New York Post-Graduate Medical School and Hospital, held May 10, Dr. D. B. St. John Roosa was re-elected president, and Dr. James N. West elected secretary, to succeed Dr. Forbes Hawkes, resigned. Eight new instructors were appointed and the members of the Faculty pledged themselves to raise $40,000 by the end of November. This sum goes towards the fund of $100,000 which must be subscribed before an anonymous gift provisionally promised to the institution is available.

Miscellany.

THE VITALITY OF THE TYPHOID BACILLUS IN SHELLFISH.

Dr. E. Klein, Vice-President of the London Pathological Society, reported at a meeting of that Society, April 18, last, the results of an investigation of the above subject.[1] After explaining the scope of the inquiry and the methods for determining in a given oyster or other shellfish at a given period the number of bacillus typhosus or bacillus coli communis with which the shellfish had been supplied, he summarized his results as follows:

(1) Oysters readily took up into their interior the bacillus typhosus which had been introduced into their shell or into the surrounding sea water. (2) Oysters, clean at starting, rapidly cleared themselves of the ingested bacillus typhosus if they were kept in clean sea water which was frequently changed. (3) Oysters, clean at starting, cleared themselves of the ingested bacillus typhosus to a less extent and more slowly if they were kept in a "dry" state, *i. e.*, out of the sea water. (4) Oysters from a polluted locality cleared themselves of the ingested bacillus typhosus to a less extent and at a slower rate, even if kept in clean sea water, than oysters clean at starting. (5) Oysters from a polluted locality retained the ingested bacillus typhosus to a markedly larger extent if kept "dry," *i. e.*, outside the water. (6) The process of "clearing themselves" of the ingested bacillus typhosus could not be owing to the oyster merely "passing out" the ingested bacillus typhosus but must be due to a large extent to an inherent power of the oyster of *directly devitalizing the microbe*. The experiments with the "dry" oysters proved this and it was also evident from the rapid rate at which this microbe disappeared from the oysters kept in clean water if compared with the very small number of the microbe (bacillus typhosus) found at the same time in the surrounding sea water. (7) Oysters which had been infected with the bacillus typhosus and which were then kept in a "dry" state till they had practically cleared themselves of the microbe, when subjected to reinfection with the bacillus typhosus appeared less capable of dealing with this microbe even if they were kept in clean sea water than the reinfected oysters which had always been kept in the water. This could be explained by the obvious supposition that oysters, by being kept for some days out of the water, were not possessed of the same degree of vitality and activity of their tissues as oysters were which had always been kept under normal conditions, *i. e.*, in water. (8) Oysters from a polluted locality and containing a large number of bacillus coli very rapidly cleared themselves of this microbe, both those kept in as also those kept out of the water. This showed that the bacillus coli was foreign to the oyster and was rapidly destroyed by it. (9) However largely infected with the bacillus typhosus the oysters at no time presented to the eye any sign of such infection; they remained in all parts normal in aspect. This was the case not only with the infected oysters kept in sea water but also with the infected oysters kept in the "dry" state. There was only one exception; *viz.*, an oyster derived from a polluted locality, which oyster had been for eleven days out of the water. (10) During the time of these experiments (part of September, October, and part of November) the oysters lived quite well in *sterile* sea water frequently changed. There was no alteration noticeable in the aspect of the fish; they remained plump and juicy and capable of promptly and tightly closing the shell. (11) Cockles readily embodied the bacillus typhosus present in the sea water. While the number of these latter appeared at first to diminish in the body of the cockles it soon increased to a considerable degree, for five days after the cockles had been removed from the infected water and kept in clean sand the number of bacillus typhosus exceeded three times the number initially present. Their subsequent diminution proceeded only slowly since even ten days after removal from the infected water the cockle examined still contained in its body 69,000 bacilli. (12) Mussels also readily embodied the bacillus typhosus — in fact, the analysis seemed to show that mussels did so to an extent greater than oysters or cockles. As regards the fate of the bacillus typhosus in the mussels these appeared to stand between oysters and cockles, since in mussels the bacillus typhosus underwent gradual diminution, but this diminution was incomparably slower than in oysters, although it took place somewhat more quickly than in cockles. Direct experiments were made by placing clean oysters — free from the bacillus coli — in sea water infected with normal human fecal matter or with domestic sewage in which the number of bacillus coli communis was ascertained. It was found that while the oysters readily ingested the bacillus coli communis, they as readily cleared themselves of this microbe if afterwards placed and kept in clean sea water; from which it followed that just as the bacillus typhosus so also the bacillus coli communis was a microbe alien to the oyster and when present in it must have been derived from the surroundings.

[1] The *Lancet*, April 29, 1905, p. 1134.

A CURATIVE SERUM FOR TYPHOID.

W. R. STOKES and J. S. Fulton, Baltimore,[1] report the result of their experiments in the production of a curative serum for typhoid. Their experiments were made on guinea pigs and on rabbits with polyvalent serums derived from hogs. These serums were tested for agglutinative power, minimum fatal dose, protective influence and power of destroying the typhoid bacillus, either alone or mixed with other serums. Hemolytic experiments were also performed. The serum was tested clinically in twenty-three cases, two of which resulted fatally; it seemed to contribute to the favorable result in fifteen of the cases in which recovery took place. The clinical observations and the laboratory experiments alike indicated that the immune hog serum is not hemolytic for human blood. Stokes and Fulton conclude that by the use of this serum the febrile period may be shortened and the daily variation may be favorably modified.

Correspondence.

WHAT IS OUR DUTY AS WITNESS IN A MALPRACTICE SUIT AGAINST A BROTHER PRACTITIONER?

LAWRENCE, MASS., May 6, 1905.

MR. EDITOR. — On the 16th of May, 1894, the writer was called to see a boy named Farley, who had sustained a peculiar accident.

The story told him was as follows: The boy, who was some twelve years of age, was playing soldier with a sword made of an old lath. While trying to ride on a dog's back, he fell or was thrown to the ground, and the point of the wooden sword entered his neck on the right side. He immediately became unconscious and was taken by an older boy to a neighboring drug store.

During the passage the sword fell or was drawn from the wound, evidence on this point not being clear. The wound bled very freely, but pressure and the application of plaster stopped the hemorrhage.

The boy regained consciousness but was still faint and was carried to his home. He was placed in bed and the writer, being in the neighborhood, was summoned. The boy was found pale, cool to the touch and showing signs of severe shock. On the right side of the neck, near the line of the sterno-cleido-mastoid a little below and back of the angle of the jaw, was a cut with clean edges about an inch long. This had been drawn together with plaster. The plaster was removed, the wound cleansed and the neck carefully palpated. According to the writer's best recollection the wooden sword was not shown him, though this was denied by the plaintiff.

The writer did not probe the wound for two reasons: First, the condition of the boy and the fear of starting up hemorrhage; second, the belief that the probing of a punctured wound was not the best surgery. The wound was dressed and the family told that there was probably no splinter in the neck. The patient was seen three times afterwards, once at his house and twice at the office.

The wound healed by first intention, but three days after the injury, the boy experienced a choking sensation at night. As nothing could be seen in the throat to account for it, it was considered a nervous phenomenon and some sedative given. The choking sensation continued, however, and, after the writer's connection with the case ceased, led to the parents taking the boy to other physicians. Sometime in the fall of 1894 a surgeon, now dead, operated on his throat and nose. What was done is not known, but there was no relief to the symptoms. During the winter of 1895 he went for six months, twice a week, to the Massachusetts General Hospital for this same choking sensation and also a foul breath, which had begun to trouble him. Careful examinations of the throat were repeatedly made and treatment given but without results. Some time in 1896 a small splinter was discharged from an abscess in the neck, near the site of the original injury. The point of exit healed up but there was no relief to the symptoms.

In 1901, seven years after the accident, while filling a tooth the dentist operating noticed something projecting, according to his evidence, "transversely in the pharynx, posteriorly and above the soft palate" and extracted it. It proved to be a splinter, something over an inch long and three eighths of an inch in diameter at its broadest end. According to the evidence given at the trial this was followed by relief of all the symptoms. Suit for malpractice was brought against the writer, and the first trial, in 1903, ended in a disagreement of the jury.

In 1905 the case came up again, and as the evidence in the two trials was much the same, I will confine myself to the latter trial.

Drs. Clement and Durant of Haverhill and Dr. Sawin of Charlestown were the medical witnesses for the plaintiff. They testified substantially that the wound should have been probed at the first visit, or, if his condition forbade that, it should have been done a day or two later. Once the wound was healed no operation, without positive knowledge of the locality of the splinter, was called for.

Dr. Clement testified that in his opinion palpation ought to have shown the presence of the splinter.

Dr. Durant thought that it might or might not, according to its position.

Drs. Richardson and Brooks of Boston and five of the best surgeons in Essex County testified for the defense. Their testimony was to the effect that probing of an incised wound, such as was described, was not the best surgery and probably would not have disclosed the splinter. They also testified that careful palpation might not indicate its presence. The judge ruled that the case was one largely of expert evidence, turning on the question of probing, but even if the jury after hearing the two sides believed that probing was the better course, if they also believed that good surgeons differed on this point, then it became a matter of judgment, and the writer was not to be held responsible, so far as probing was concerned. The writer has given, of course, the baldest account of the trial and omitted everything except the salient points. The jury brought in a verdict of some four hundred and fifty dollars against the defendant.

There are many interesting points about this case. In the first place it seems strange that a splinter of the size described should not be detected by palpation. Luckily for the writer, that it could not be so detected was shown by the after history of the case. A surgeon of skill operated on the boy's throat, repeated examinations were made at the Massachusetts General Hospital, at least three other physicians treated him later, and yet, with all the facts of the case before them, neither they or the boy himself suspected its presence.

Another point is the importance of taking notes of a case. While the law outlaws a claim after a certain number of years in the case of an adult, an infant's claim holds good until he is twenty-one. As a consequence ten or twenty years after, a surgeon may be called on to answer to a suit for malpractice in a case where his remembrance of the exact facts is dim. The writer believes that had he had notes of this case, the suit would never have come to trial.

One of the most interesting points is the question of evidence by physicians on the plaintiff's side in malpractice suits. No reputable physician, I suppose, likes to appear against another, but there are cases where a physician becomes involved on a question of fact, and can then be used by the plaintiff's lawyer as an expert in the case. In such cases a man must tell the truth, but ought he to allow a lawyer's question to make him tell the truth in such a way that it becomes an untruth? Perhaps the writer can best illustrate what he means by a supposititious case. We all know that a lawyer does not wish the truth, the whole truth and nothing but the truth; he wishes as much of the truth as will help his side, and so he

[1] *Journal A. M. A.*, May 13.

frames his question. Supposing, then, he asks an expert on the stand, referring to a time ten years ago, Does proper surgical treatment in a case of appendicitis demand an immediate operation, and the expert, believing that it does, answers, Yes. Is he really telling the truth when he knows that at that time there were men, as good or better surgeons than he, who did not believe so? The jury believes that he is stating a fact, a surgical law, and not a mere opinion. Nor does cross examination, in most cases, clear this up; the defendant's lawyer is afraid to ask questions where he does not know what answers will be given, and when his own witnesses are heard, their testimony, even if explanatory, is regarded by the jury as biased, a case of physicians helping one another.

The lawyer for the plaintiff, too, is apt to impress on the jury the fact that his medical witnesses are unwilling, and therefore more to be regarded.

A physician in a malpractice suit is at a disadvantage, and it seems to the writer that a brother physician, who is forced to appear against him, should tell the whole truth and not merely such part as will help the plaintiff's side. In other words, in all cases, where among physicians generally there is a difference of opinion as to the advisability of doing or not doing certain things, especially where he knows the physician in charge had a better chance for correct judgment, the writer believes that the expert for the plaintiff should not answer, Yes, to a question whether proper surgical treatment *demands* what may indeed be right in his own opinion but is not a general surgical law.

Proper surgical treatment is a general term and means any treatment that is held correct by a reasonable number of good and well-informed surgeons. A man may be conservative and a little behind the times, he may be progressive or radical, and lead in some reform or improvement, but because we do not quite agree, are we to say that he does not use proper surgical treatment?

The writer has been accustomed to use certain methods in preparing a patient for an operation, he believes they are the best, but in answer to a question, Does proper surgical treatment in your opinion demand this process, he would answer, No, and any other answer, it seems to him, would be egotistical and untrue.

In a trial before the ordinary jury any statement by the plaintiff's medical experts has much more influence than the defendant's, and this should make the physician who is obliged to appear against his brother not only honest but just. These are questions which may affect every physician in the commonwealth. No suit for malpractice is likely to be successful unless backed by some reputable physician, and his testimony, perhaps given honestly, may cost the defendant thousands of dollars, the only difference of opinion being what each considered right, and this right a fair matter of judgment. The writer would like to hear from the readers of the JOURNAL some opinion as to what are the ethics of the medical profession in suits for malpractice.

Very truly yours,

O. T. HOWE, M.D.

A PROPOSED CURE FOR DIABETES.

HUDSON, MASS., May 12, 1905.

MR. EDITOR: I have discovered after a year's work, that we have a hitherto unsuspected specific for diabetes mellitus. It should be given in doses of gr. v to x, immediately before each meal, and absolutely no food taken between meals. The remedy is benzoic acid and its compounds. It should be continued several weeks, and a mixed diet gradually resumed. No sugar should be taken for several months, in my opinion. My excuse for making this report thus early, is that were it delayed long enough to gain its proper place in the therapeutics of the above mentioned hitherto formidable disease, thousands must suffer in consequence.

Actuated by no other motive than a utilitarian one, I have thus early made my report.

Very truly yours,

SILAS G. SOULES, M.D.,
New York University.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 6, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Scarlet Fever	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,521	483	28.73	18.54	2.56	.92	7.30
Chicago . . .	1,990,750	530	161	27.55	16.04	1.69	.18	.94
Philadelphia	1,407,968	481	139	34.11	16.60	2.27	.21	.83
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	201	54	23.88	18.40	.49	—	1.00
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	363,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	62	19	19.35	16.13	4.84	1.61	—
Boston . . .	617,950	233	50	18.88	17.34	1.29	1.71	1.71
Worcester . .	136,925	37	16	5.40	5.40	—	—	5.40
Fall River . .	119,349	41	22	21.95	34.14	2.44	—	—
Lowell . . .	104,402	47	16	17.01	12.76	—	—	6.38
Cambridge .	100,998	28	10	25.00	25.00	—	—	7.14
Lynn	78,875	29	4	10.34	17.24	—	—	6.90
Lawrence . .	73,848	25	7	20.00	16 00	—	—	8.00
Springfield .	72,020	14	1	14.28	7.14	7.14	—	—
Somerville .	70,413	22	3	18.18	22.72	4.54	—	—
New Bedford	68,883	15	5	13.33	20.00	—	—	6.67
Holyoke . . .	50,588	17	5	17.54	29.41	—	—	—
Brockton . .	46,601	6	1	33.33	—	—	—	—
Newton . . .	39,510	7	—	14.30	—	—	—	—
Haverhill . .	39,061	11	—	45.45	—	—	—	—
Malden . . .	37,305	8	1	12.50	—	—	—	—
Salem	37,188	11	3	18.18	—	—	—	—
Chelsea . . .	36,499	12	1	—	16.67	—	—	—
Fitchburg . .	36,235	8	3	25.00	12.50	—	—	—
Taunton . . .	34,577	10	—	30.00	10.00	—	—	—
Everett . . .	30,309	6	1	16.67	—	—	—	—
North Adams	29,201	9	1	—	11.11	—	—	—
Quincy . . .	26,798	8	3	50.00	12.50	—	—	—
Gloucester .	26,121	5	1	—	—	—	—	—
Waltham . .	25,797	8	—	12.50	12.50	—	—	—
Brookline . .	25,576	5	—	20.00	—	—	—	—
Pittsfield . .	23,670	2	0	—	50.00	—	—	—
Medford . .	23,065	6	—	—	66.67	—	—	—
Chicopee . .	21,692	4	3	25.00	25.00	25.00	—	—
Northampton	20,514	7	0	—	—	—	—	—
Beverly . . .	15,807	2	—	—	50.00	—	—	—
Leominster .	15,711	2	—	—	50.00	—	—	—
Clinton . . .	15,694	3	0	33.33	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	3	1	33.33	—	—	—	—
Hyde Park .	14,500	5	2	—	—	—	—	—
Newburyport	14,478	4	0	50.00	—	—	—	—
Woburn . . .	14,315	5	2	20.00	40.00	—	—	—
Melrose . . .	13,819	2	0	—	—	—	—	—
Westfield . .	13,800	3	2	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	6	1	—	16.67	—	—	—
Revere . . .	13,609	3	1	—	—	—	—	—
Framingham	13,974	2	—	—	50.00	—	—	—
Peabody . .	13,498	—	—	—	—	—	—	—
Gardner . . .	12,234	—	—	—	—	—	—	—
Southbridge .	11,716	1	—	—	—	—	—	—
Watertown .	11,575	2	0	50.00	—	—	—	—
Weymouth .	11,350	3	1	33.33	—	—	—	33.33
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,482; under five years of age, 1,013; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 877; acute lung diseases 504, consumption 415, scarlet fever 23, whooping cough 26, cerebrospinal meningitis 134, smallpox 4, erysipelas 17, puerperal fever 19, measles 27, typhoid fever 40, diarrheal diseases 96, diphtheria and croup 70.

From whooping cough, New York 12, Chicago 13, Holyoke 1. From scarlet fever, New York 14, Chicago 1, Phildelphia 1, Providence 1, Boston 4, Brockton 1, Quincy 1. From cerebrospinal meningitis, New York 111, Philadelphia 4, Baltimore 2, Boston 4, Lowell 3, Worcester 2, Cambridge 2, Lynn 2, Lawrence 2, New Bedford 1, Weymouth 1. From erysipelas, New York 13, Chicago 3, Lowell 1. From smallpox, Chicago 3, Boston 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending April 29, 1905, the death-rate was 16.5. Deaths reported 4,954; acute diseases of the respiratory organs (London) 138, whooping cough 122, diphtheria 42, measles 203, smallpox 1, scarlet fever 32.

The death-rate ranged from 8.1 in Hornsey to 27.0 in Middlesbrough; London 15.9, West Ham 17.1, Brighton 13.1, Southampton 18.6, Plymouth 13.9, Bristol 16.0, Birmingham 16.9,

Leicester 15.1, Nottingham 16.8, Birkenhead 18.9, Liverpool 21.4, Wigan 22.9, Bolton 17.6, Manchester 16.5, Salford 14.6, Halifax 14.9, Bradford 18.7, Leeds 15.2, Hull 18.6, Sheffield 21.5, Newcastle-on-Tyne 19.1, Cardiff 14.5, Rhondda 18.4, Merthyr Tydfil 25.4, Kings Norton 8.2.

METEOROLOGICAL RECORD.

For the week ending May 6, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 30	29.77	60	73	47	69	79	74	W	N W	8	15	C.	F.	0
M. 1	29.90	46	52	41	60	66	63	N W	N W	20	16	C.	C.	T.
T.. 2	30.12	50	61	38	44	52	48	N W	W	16	12	C.	O.	0
W.. 3	29.93	62	77	48	66	82	74	W	N	4	10	O.	F.	0
T.. 4	30.22	48	51	45	89	89	89	N E	E	12	3	F.	C.	0
F.. 5	30.38	53	63	43	79	73	76	S E	E	6	12	F.	C.	0
S.. 6	30.08	64	79	49	79	78	78	S W	S W	12	13	O.	O.	T.
Sum	30.06		65	44			72							T.

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. †Indicates trace of rainfall. Sum Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 13, 1905.

H. F. HULL, assistant surgeon. Detached from the "Franklin" and ordered to the Naval Hospital, Philadelphia, Pa., May 8.

SOCIETY NOTICE.

AMERICAN LARYNGOLOGICAL ASSOCIATION. — The twenty-seventh annual congress of the American Laryngological Association will be held at Atlantic City, N. J., June 1, 2 and 3, 1905. The sessions will be held at the Hotel Chelsea. The profession is cordially invited to attend.

JAMES E. NEWCOMB, M.D., *Secretary.*

RECENT DEATHS.

DR. HEBER NELSON HOOPLE, a specialist in diseases of the throat, nose and ear, and a well-known writer on these subjects, died at his home in Brooklyn, N. Y., on May 9. He was born in Wales, Ontario, in 1856. He was graduated from Victoria College, Coburgh, in 1878, and from the medical department of Toronto University in 1885. He also received the degree of M.D. from Bellevue Hospital Medical College, New York. He was a member of the British Medical Association, and among the institutions with which he was connected were the Williamsburgh Hospital, the New York Eye and Ear Infirmary and the Methodist Episcopal Church Home, Brooklyn.

DR. SEYMOUR C. TROUTMAN, of Somerville, N. J., died on May 6, at the age of eighty-three years. He was a son of Sir John Troutman who, as a young man, served with distinction in the British Navy, and who later is said to have owned the land now occupied by Prospect Park, Brooklyn.

BOOKS AND PAMPHLETS RECEIVED.

The Conjunctiva in Health and Disease, being a Record of Some Research Work. By N. Bishop Harman, M.A., M.B. Cantab., F.R.C.S. Eng. Illustrated. New York: William Wood & Co. 1905.

International Clinics. A Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J. Kelly, A.M., M.D. Illustrated. Vol. I. Fifteenth Series, 1905. Philadelphia and London: J. B. Lippincott Co.

The Prevalence of Puerperal Septicemia in Private Practice at the Present Time, Contrasted that with a Generation Ago. By Stanley P. Warren, M.D. Reprint.

Memoranda Relating to the Discovery of Surgical Anesthesia, and Dr. William T. G. Morton's Relation to this Event. By William James Morton, M.D. Reprint.

"Something New." By Dr. Groesbeck Walsh. Reprint.

Clinical and Microscopical Diagnosis. By Francis Carter Wood, M.D. Illustrated. New York and London: D. Appleton & Co. 1905.

Diseases of the Heart and Aorta. By Thomas E. Satterthwaite, M.D. New York: E. R. Pelton. 1905.

An Introduction to Chemical Analysis. For Students of Medicine, Pharmacy and Dentistry. By Elbert W. Rockwood, M.D., Ph.D. Second Revised Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

The Medical Epitome Series. Diseases of the Eye and Ear. A Manual for Students and Practitioners. By Arthur N. Alling, M.D., and Ovidius Arthur Griffin, B.S., M.D. Series edited by Victor Cox Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1905.

Department of the Interior Bureau of Government Laboratories. Serum Laboratory. Vaccine Virus: Method of Preparation at the Serum Laboratory. By Paul G. Wooley, M.D. Manila. 1904.

The Eye, Mind, Energy and Matter. By Chalmers Prentice, M.D. Chicago. 1905.

Nineteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. 2 vols. 1904.

A Handbook of Nursing. Revised edition. For Hospital and General Use. Published under the Direction of the Connecticut Training-School for Nurses connected with the General Hospital Society, New Haven, Connecticut. Illustrated. Philadephia and London: J. B. Lippincott Company. 1905.

The Open-Air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning, M.D. Cantab. Illustrated. London, Paris, New York and Melbourne: Cassell & Co. Chicago: W. T. Keener & Co. 1905.

Food Preservatives, their Advantages and Proper Use. The Practical versus the Theoretical Side of the Food Problem. By R. G. Eccles, M.D., Pharm. D. With an Introduction by E. W. Duckwall, M.D. New York: D. Van Nostrand Co. 1905.

Two Cases Presented to the Clinical Society of the New York Post-Graduate Medical School and Hospital, Dec. 16, 1904. By William Seaman Bainbridge, M.S., M.D. Reprint.

A Case of Extensive Carcinoma of Tongue and Neck, Presenting Points of Special Interest. By William Seaman Bainbridge, M.S., M.D. Reprint.

The Genesis of Sympathetic Ophthalmitis. By Samuel Theobald, M.D. Reprint.

The Importance of Testing the Ocular Muscle Balance for Near, as Well as for Distant Vision. By Samuel Theobald, M.D. Reprint.

Malformations of the Genital Organs of Woman. By Ch. Debierre. Translated by J. Henry C. Simes, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

Crimes Against our Criminals and Insane. By Dr. George W. Galvin.

On the Methods of Percussion Employed in Edinburgh and Glasgow; with Special Reference to the Importance of Minimizing the Stroke in Most Cases in the Delimitation of Areas. By W. T. Gairdner, K.C.B., M.D., LL.D., F.R.S. Reprint.

Twentieth Annual Report of the Adirondack Cottage Sanitarium, Saranac Lake, N. Y., November, 1904.

The Influence of the Filtration of Potable Water on the Death Rate of Typhoid Fever. By Joseph D. Craig, A.M., M.D. Reprint.

Twenty-ninth Annual Report of the Managers and Officers of the New Jersey State Hospital at Morris Plains for the Year ending October 31, 1904.

The Thyroid and Parathyroid Glands. By Hubert Richardson, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

A Consideration of Some Tendencies in Modern Medical Education. By Joseph D. Craig, A.M., M.D. Reprint.

University of California Publications. Physiology. On the Diuretic Action of Certain Hemolytics, and the Action of Calcium in Suppressing Hemoglobinuria (Preliminary Communication). By John Bruce MacCallum. On an Improved Method of Artificial Pathogenesis (Second Communication). By Jacques Loeb.

Ruptured Ectopic Pregnancy. With Reference to Cases of the Acute Intraperitoneal Type. By Groesbeck Walsh, M.D. Reprint.

Original Articles.

A CONSIDERATION OF THE PELVIC ARTICULATIONS FROM AN ANATOMICAL, PATHOLOGICAL AND CLINICAL STANDPOINT.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON,
AND
ROBERT B. OSGOOD, M.D., BOSTON.

THE following paper is presented for the purpose of calling attention to certain conditions of the pelvic articulations both normal and pathological, concerning which the knowledge of the profession has been much less than the importance of the symptoms and the frequency of occurrence would seem to justify.

The subject was first brought to our attention by (Goldthwait) seeing a patient who was greatly disabled by marked relaxation of the pelvic articulations following pregnancy.

During the past two years a large number of other patients now considerably over one hundred have been seen with symptoms referred to these articulations. In connection with the study of these, many normal subjects have been examined, and much anatomical work performed, and from all these investigations conclusions have been drawn that represent the basis of this paper.

When the first patient was seen by us our ignorance of the subject was complete, and in the literature which was then available the condition was mentioned by several writers, but chiefly as one of rarity, with a doubtful prognosis and with few suggestions for treatment. At that time the article by Dr. Snelling, which is by far the most comprehensive, was not found, and was not seen until our work was nearly complete, so that while it was of little assistance in our investigations, it was, nevertheless, of much interest, and served to verify many of our observations in connection with the pregnant cases.

Of the text-books consulted, Williams [1] states that spontaneous rupture of the symphysis pubis or of one or both of the sacro-iliac articulations has been observed, but it is usually produced by injudicious methods of delivery. He also states that during pregnancy an increased mobility of the pelvic articulations occurs physiologically, due to the increased vascularity of these parts. "Rarely a definite softening of the intra-articular cartilage on the symphysis pubis permits abnormal motion at that joint, which is associated with intense dragging pain at the pelvis and also the abdomen, with profound alteration of gait. This condition is usually relieved by a tight-fitting bandage about the thighs, but sometimes prolonged rest in bed is essential, and even then the condition in extreme cases may persist for an indefinite period."

Hirst [2] states that abnormal relaxation of the pelvic joints is probably due to some pathological condition within the joint, as an inflammatory process with suppuration, caries, osteomalacia, or new growth.

[1] Williams: Textbook of Obstetrics.
[2] Hirst: Textbook on Obstetrics.

Jewett [3] under "Anomalies," mentions abnormal relaxation of the pelvic joints and gives the predisposing causes as osteomalacia, rickets, syphilis, tuberculosis, a large fetal head, or faulty presentation.

Reynolds and Newell [4] state that there is occasionally a pathological mobility in the pelvic joints during pregnancy without giving further opinion as to the cause or treatment.

Aside from this in the other works on obstetrics and gynecology little or no mention was made. The monograph by Louis Cantin [5] deals exclusively with the relaxation of the joints during pregnancy as distinguished from the rupture of the articulations during labor. The author, on a basis of a series of five hundred hospital cases, comes to the following conclusions:

1. Relaxation of pelvic articulations is associated with pregnancy. This relaxation is most marked in the symphysis. In the sacro-iliac synchondroses the changes are less marked, but they exist. In all but 2% of his cases, however, he found some mobility, a condition which was always absent in non-pregnant women. The relaxation in only 16% exceeded 1 mm., and in none of his cases did it exceed 3 mm.

2. In 2% of cases there was absolute rigidity of joints.

3. Relaxation occurs more frequently and to a greater degree in multiparæ than in primiparæ, and occupations necessitating much walking or carrying of burdens seem the most important predisposing factors. Constitutional weakness, rickets, cachectic states, and functional disorders seem to be of importance etiologically.

4. There is no relation between the degree of relaxation and the severity of the symptoms, which range from slight pains referred to the symphysis pubis or the sacro-coccygeal region, to pain throughout the entire pelvis and down the thighs, with unsteadiness of gait or even complete disability.

In 15% of the 500 cases symptoms existed, and in about 70% of these pain was referred to the symphysis alone, and accompanied, as a rule, a mild rather than a severe degree of relaxation. Direct palpation could in all these cases definitely localize the areas of tenderness which were referred to one or another articulation. Walking was usually slow, unsteady, waddling, and occasionally accompanied by definite crepitus in the joints involved.

5. Prognosis: During pregnancy the condition gradually increases and is modified only by rest. Usually after delivery the condition tends to return to normal within a few weeks, but it may persist for months or years or even throughout life, disabling the patient to a greater or less degree.

6. Treatment: The treatment during pregnancy is simply palliative, consisting of rest with immobilization. After delivery, various types

[3] Jewett: Practice of Obstetrics.
[4] Reynolds and Newell: Practical Obstetrics.
[5] Louis Cantin: Relachement des Symphyses et Arctralgies pelviennes, d'origine gravidiques. Doctorate Thesis. University of Paris, 1899.

of supporting bandages are advised. He reports in detail seven cases, personally observed, in which the symptoms were especially severe.

An individual case is reported by Dr. Lee, which is so similar to our own that it need not be reported in detail. In his conclusions he states that in routine examination of pregnant women in late months of gestation, he has almost always found tenderness directly over the pubis, and that by manipulation distinct motion of the joint can be felt. "For treatment nothing is of permanent or constant benefit." "Rest is the best, the condition disappearing rapidly after parturition."

G. A. Himmelsbach,[6] Paul Rudaux,[7] and J. B. DeLee report cases of rupture of the symphysis, but without suggestions for the treatment.

In 1870, Dr. Frederick J. Snelling[8] read a paper before the Medical Journal Association of New York upon the subject of the "Relaxation of the Pelvic Symphyses during Pregnancy and Parturition," in which he states that "This condition has been known and commented upon since the time of Hippocrates, but it is a noteworthy fact that but few of the systematic writers on obstetrics refer to it. Still, we find a few monographs and isolated allusions to it scattered through medical literature by the most eminent authorities among whom are Winckel, in his '*Pathologie und Therapie des Wochenbettes*,' Berlin, 1866; Ballochi, '*Manuel di Obstet.*,' Milan, 1859; Cazeaux, '*Traité Théorique et Practique de l'Art des Accouchements*,' Paris, 1867; various writers in Schmidt's *Jahrbucher*, Nos. 1, 8, 58, 103, and 130; Blundell, Griffith, Debout, Erichson, Jacquemier; Trousseau, in his '*Leçons Cliniques sur le Relachement des Symphyses du Bassin*'; Couret, Desormeaux, Churchill, Meissner, Smellie, Stoltz, Luschka, Albini, Laborie, Cruveilhier, Ercole Galvani, Velpeau, Lenoir and Dubois."

The affection appears to Snelling to "consist of a relaxation of the pelvic articulations, becoming apparent suddenly after parturition, or gradually during pregnancy, and permitting a degree of mobility of the pelvic bones which effectually hinders locomotion, and gives rise to the most peculiar, distressing and alarming sensations."

He does not consider the condition at all as apart from pregnancy, but he does describe the sciatic pain which has been so common in our own cases. For treatment he uses belts, and in severe cases an appliance somewhat similar to a pair of bathing trunks, made of firm material which is fastened tightly about the hips.

In all of these articles, the question of weakness or mobility of the pelvic articulations is considered as occurring in and being due to pregnancy, consequently being entirely confined to women. The mobility of the symphysis has also been most often noted and considered to be of the chief importance. In the early observations our own views were in keeping with these suppositions, but after watching several of the patients and noticing the increase of the symptoms at the menstrual periods, it seemed probable, and was so stated in an early draft of this paper, that menstruation at times, entirely without the influence of pregnancy, would be enough to cause this same relaxation. Shortly afterward a patient was seen in whom this condition existed, where, without any question of pregnancy, there was relaxation so marked as to seriously interfere with locomotion. Still further observations have shown that while both of these conditions (pregnancy and menstruation, are undoubted factors at times in the production of abnormal mobility of these joints, they are by no means necessary, and that not only are there other causes for the condition, but that it may exist in men and children as well as in women. Not only this, but it seems to be definitely proven that a certain amount of motion in the pelvic articulations is normal, and it is also certain from the experience obtained in treating this series of cases that there are definite principles of treatment for the condition, with a favorable prognosis if the treatment can be carried out.

The large amount of clinical and anatomical study which has been carried on in connection with this subject during the past two years makes it quite plain that the pelvic articulations, especially the sacro-iliac synchondroses, are by no means as stable as has been supposed, and that in man and woman under normal conditions definite motion exists. It is also shown that the articulations are true joints, having all of the common joint structures, and that this being the case, they are naturally subject to the same diseases and injuries as the other joints. When this is once appreciated and the character of the articulations is considered, and especially when it is remembered that the exact apposition of these bones is maintained almost entirely by the ligaments, the surprising thing is, not that abnormal mobility and disease of the joints ever do occur, but that they do not occur more frequently. There is always, without question, a physiological relaxation of these articulations during pregnancy, and possibly always, certainly occasionally during menstruation, but these are only some of the factors which cause an excess of the normal amount of motion. Injury, disease, a general lack of muscular and ligamentous tone, all are factors. With these conditions sex is of no importance, except that as the female pelvis is less firmly constructed, the mobility is more easily obtained. On the other hand, because of the greater strength and size of the articulations in the man, when abnormal motion does take place the disability is likely to be more marked than with the woman.

As the cases are studied they at once divide themselves into groups; the first including the cases in which there is definite relaxation associated with pregnancy, representing an exaggeration of a normal physiological condition; the second the cases in which the relaxation is asso-

[6] G. A. Himmelsbach: Rupture of the Symphysis Pubis during Parturition, 1900.
[7] Paul Rudaux: De la Rupture de la Symphyse Pubeime au cours de l'accouchement, Paris, 1898.
[8] Frederick J. Snelling: Relaxation of the Pelvic Symphyses during Pregnancy and Parturition. American Journal of Obstetrics, Vol. ii, No. 4. February, 1870.

ciated with menstruation, apparently representing also a physiological condition, apart from any pathological change with which we are at present familiar; and the third, the cases in which the lesion is due to trauma, general weakness or some definitely known pathological process.

The first two groups are naturally entirely confined to women; but with the last the sex or age has no effect on occurrence. In the first two groups there is a striking difference in the presence or the absence of pregnancy, but aside from this there is little in the clinical picture to divide them. In general, the relaxation associated with pregnancy is more marked, as it is also more rapid in its development, but it is also more certainly and quickly rectified by treatment when the cause is removed. With the nonpregnant cases the relaxation is not as marked; there is no sudden onset with severe symptoms, but it is more insidious and also more troublesome in treatment, as the apparent cause is repeated at the return of each menstruation. Between this latter type and the cases which have resulted from pregnancy and which have gone on for some time untreated, there is very little difference either in the clinical appearance, the treatment, or the prognosis.

The cases which properly belong to the third group are not only more numerous, but many of the characteristics are different from the cases in the other groups. Only one joint may be affected instead of all three as is common in the other groups, and the referred pains in leg and hip are much more common in the cases of this group than in those previously considered. The lateral deformities or deviation of the body to one side, due to the partial displacement of the bones on one side and not on the other, are common. The onset may be sudden. The so-called "stitch" in the back following strain or overwork is in most instances due to the slipping of these bones, and in these cases the lesion represents a definite sprain, the severity of the symptoms depending upon the severity of the injury as with sprains of other joints. The onset at other times may be more insidious, and be part of a definite joint disease, the symptoms being due to weakness resulting from the disease or from the presence of accompanying bone and joint structure thickening, the hypertrophic arthritis (osteo-arthritis) being the most common of these affections.

ANATOMY: If the pelvic articulations are studied carefully it will be seen that the articular surfaces are formed so as to make motion possible in certain directions, and that such motion serves to lessen jar or strain. It is also seen that these motions tend to increase or modify the diameters of the pelvis, and consequently in women are of much importance. The motion is upon a transverse axis, the center being at the lower portion of the articulation between the sacrum and the ilium, through the second sacral vertebra, or at about the middle of the body of the sacrum. Because of the arrangement of the ligaments and the shape of the surfaces of the bone forming the articulation, the motion of the sacrum must be backward at the top and forward at the tip, or the reverse, unless the relaxation be extreme. (Figs. 1 and 2.) This can, of course, be developed by either moving the sacrum on the ilia or moving the ilia upon the sacrum. If the upper part of the sacrum is moved backward, the antero-posterior diameter at the brim of the pelvis is consequently increased. At the same time the tip of the sacrum is necessarily moved forward, and the anterio-posterior diameter at the outlet is narrowed. If this motion be reversed the effect upon the pelvic diameters must necessarily be reversed also. As the motion is studied still farther, it will be seen that, because of the obliquity of the articular planes, when the upper portion of the sacrum is drawn backwards the iliac bones are necessarily separated so that the lateral diameter at the brim is also increased, while the same diameter at the outlet would be narrowed.

It is also evident in the anatomical study that all motion in the pelvis must take place in, or depend upon, the sacro-iliac articulations. The surfaces of these articulations are so broad and flat, and the ligaments are so strong and numerous, that motion at the symphysis could not take place unless the ligaments at the synchondroses were relaxed, and that much separation of the pubic bones at the symphysis could only be present in the cases in which the relaxation at the back is extreme. Under such conditions the looseness is so marked that the instability is great, and at times locomotion is rendered impossible.

The fact that the pubic bones are of little importance in maintaining the pelvic stability, except as they furnish attachment for the muscles, is borne out by the general clinical findings. In the cases of exstrophy of the bladder the pubic bones are generally absent, and yet difficulty of locomotion is not one of the features of this type of deformity. It is still further emphasized by a case which has been reported by Dr. Goldthwait in the BOSTON MEDICAL AND SURGICAL JOURNAL, of a boy of seven who was brought to the Children's Hospital for treatment of hip joint disease. Neither pubic bone was present, but not until the joint disease developed had the parents known there was anything wrong with the child. Of still greater interest, however, is the fact that at the meeting of the New York State Medical Association, several years ago, two cases were reported, one by Dr. Edward Reynolds of Boston, and one by Dr. Howard Kelly of Baltimore, in each of which the pubic bones were lacking, and yet a normal pregnancy had resulted entirely without symptoms due to the absence of these bones.

In order to still further study the pelvic articulations, through the kindness of Prof. Thomas Dwight of the Harvard Medical School, and with the assistance of Dr. Elisha Flagg, it has been possible to examine twenty pelves, and in all but one there was clearly demonstrable motion in both sacro-iliac articulations.

Still further observations were made in connection with autopsies, through the kindness of Dr. James H. Wright and Dr. Oscar Richardson of the Massachusetts General Hospital. In these observations, in both the man and the woman, the motion of the sacro-iliac articulations was distinct.

The method of examination in the anatomical specimens was as follows: The pelves were dissected, leaving all the ligaments in situ. The sacrum was now sawn through from the lumbar articulation to the coccyx and the sacro-iliac articulations on both sides studied.

At the autopsies the mobility was determined by driving nails into the bones. One nail was driven into the ilium near the articulation, the other into the promontory of the sacrum parallel to the first. By raising the leg about 50° with the knee straight the ends of the nails separated, on an average of 3 mm.

In this connection it is interesting to refer to the work of Dr. G. Walcher,[9] reported in a paper by him, recording a series of pelvic measurements made by him in pregnant women, with the thighs in different positions. In none of the patients was there any reason for supposing an abnormal relaxation of the pelvic joints, yet the average variation in the antero-posterior diameter at the brim was over one centimeter. His measurements were taken in two positions, the first with the patient prone upon a table, the legs from the hip down hanging free, in which position the muscular attachments would tend to draw the iliac bones forward and downward, and the other with the thighs sharply flexed upon the abdomen, in which position the iliac bones would tend to be forced upward and backward. As would be supposed from the anatomical study, the antero-posterior diameter at the brim was found by him to be greatest in the first position and smallest in the second position.

This increase can be due only to the fact that the position of the iliac bones are changed with reference to the sacrum. When the thighs are strongly hyperextended they are drawn downward and the sacrum must move forward at the same time, producing marked lordosis, unless the sacro-iliac joints are loose, in which case the sacrum is held by the spine and trunk, and the iliac bones move more or less independently until, if continued, a true subluxation results.

The same condition may be produced by reversing the movable part. If the legs and thighs are fixed and the upper part of the body is bent backward the sacrum moves backward away from its normal position, and the condition is reversed if the body is sharply flexed.

The first part of this movement is practically produced by prolonged recumbency upon the back. In the general relaxation which follows such a position the lumbar spine straightens, and the back becomes flat. With this the upper portion of the sacrum, being a part of the antero-posterior curve of the lumbar spine, is drawn backward. This is undoubtedly the explanation of the frequency of backache and leg pain developing at night after sleep, and also explains the more common backache after operations in which the profound relaxation produced by the anesthetic together with the straight hard table makes the joint strain inevitable. The common way of relieving the night pain by stretching upon first waking which draws the lumbar spine forward is also understood with this knowledge of the anatomy.

It is perhaps not unfitting in the light of these investigations to briefly discuss the mechanism of labor: From the point of view of labor, the tilting of the sacrum or mobility of the pelvic articulations is of definite importance. In the first place, Walcher has shown that the antero-posterior diameter at the brim of the pelvis can be increased by drawing the sacrum backward even when symptoms of abnormal mobility are not present. This being the case, it is evident from our anatomical work, that the diameter may be still further increased, but it must be remembered that if this is carried to a real displacement of the sacrum the direction of the inlet may be so changed that the head does not engage normally. With two of the patients at delivery the head did not descend, and high forceps were tried by the attending physician, but in both cases the position of the head was so unnatural that the procedure was difficult and in one case impossible.

In the progress of labor it is to be remembered that while the diameters at the inlet of the pelvis may be increased, the outlet is correspondingly narrowed, due both to the projection of the tip of the sacrum forward and to the inclination of the iliac bones still further to the inside owing to the oblique axis of the posterior articulations.

The application of these principles to labor should be apparent. The diameters of the inlet and the outlet can be controlled and modified within a certain range, and the muscular force for expulsion can be preserved if the displacement of the sacrum is not allowed to go on so far as to develop real pelvic instability.

To control the position of the sacrum most perfectly the best position for the patient is upon the side. If the displacement is too great, so that the head cannot properly engage, or so that marked pelvic instability with imperfect muscular control results, the displacement can be overcome by pressure applied directly over the upper portion of the sacrum. If, on the other hand, it is desired to increase the diameters at the brim of the pelvis, it is possible in most cases to do so by pressing firmly over the end or tip of the sacrum, the force being applied upward and inward. By so doing, if there is even only the normal physiological relaxation present, the promontory on the upper part of the sacrum must be forced backward.

This procedure would be of use naturally only during the descent of the head into the pelvis, and would, after that, if continued, be a disadvantage, as the movement of the sacrum, which

[9] G. Walcher: Centralblatt für Gynaecologie, No. 51, 1889. Vol. xiii, p. 892.

enlarges the diameters at the brim, necessarily narrows the diameters below. After the head has descended, the pressure at the tip of the sacrum should be discontinued. It should then be applied at the upper part of the sacrum and at the base of the spine. By so doing, the position of the sacrum and the size of the diameters is reversed.

ETIOLOGY: The etiology of the pelvic joint conditions is not always clear, but there are many features of definite importance. At times the lesion apparently represents simply an excess of a normal physiological process. At other times trauma is a definite factor, "sitting down hard," or the "giving way" under severe strains, such as lifting, being the two most common forms of injury. Attitudes or postures are also of importance in causing or predisposing to joint weakness or displacement. When once it is appreciated that motion in these articulations normally exists, it is easily understood that such attitudes as standing with extreme lordosis, or sitting with the lumbar curve reversed, as in lounging, must cause strain on the sacro-iliac articulations, which if continued will result in the same weakness and relaxation as is seen in any of the other joints under like conditions of strain. In stout persons, either men or women, the drag of the large abdomen causes lordosis with resulting pelvic joint strain, and explains the frequency of the sacro-iliac weakness in this type of individual. In this connection undoubtedly the present so-called straight front corset, if tightly worn, must be harmful by causing an unnatural amount of lordosis, and by producing too great pressure upon the anterior portion of the iliac crests. The lordosis, by throwing the hips back, necessarily forces the iliac bones downward and forward at the top, and backward at the ischia. Since in this attitude the sacrum, on account of its spinal attachment, moves less freely, the extreme of the normal motion at the sacro-iliac articulations is soon reached. Finally, subluxation of the bones, due to ligamentous relaxation, must occur. Here again are conditions all well recognized in the other joints. The pressure firmly applied at the anterior part of the crests of the ilia tends, as will be seen on studying the pelvis, to separate the lower portions of the sacro-iliac articulations. If this be continued it must also result in weakness of these joints.

A mere general lack of physical tone naturally predisposes to trouble of this sort. The bones are held in place almost entirely by ligaments and it is not to be wondered at that these relax and cause trouble as do the ligaments of the knee or foot under similar conditions.

In the cases in which definite disease is present the same elements which predispose to the special type of lesion in other joints naturally favor the occurrence of the same type in the articulations of the pelvis.

Tuberculosis has long been known to occasionally develop in these joints. The infectious process in the infectious form of arthritis may also extend to the pelvis in connection with the more general manifestation of the disease. The same thing is true of the atrophic or the hypertrophic forms of arthritis, although the latter is by far the more common. It is in this hypertrophic form that the joints at times become entirely fused (Figs. 3 and 4) and that the persistent sciaticas or leg pains are so commonly seen. These referred pains are undoubtedly due to the pressure of the hypertrophic tissue upon the lumbo-sacral cord as it passes over the articulation.

In some of the cases after all of these possible causes have been considered the condition remains unexplained, and it seems probable at times from the persistence of the trouble under the most careful treatment that there may be some developmental peculiarity which definitely lessens the pelvic stability.

SYMPTOMATOLOGY: Clinically as the cases are studied, there is a wide variation in the mobility of these joints and in the symptomatology. In several of the cases, and in all of these pregnancy was either far advanced or the confinement was of recent occurrence, the relaxation was so marked that the pelvic bones could be moved about freely, with, at the same time, wide separation at the symphysis. In many of the cases, although the amount of motion was much less than in this extreme type, it has nevertheless been possible to clearly demonstrate an amount that would be in excess of normal. In some of the cases the abnormal mobility could not be demonstrated, but the symptoms clearly pointed to some lesion of these articulations, and the treatment, which consisted in support of these joints, gave relief. It is probable, therefore, that in certain cases, especially those in which the hips are large, making palpation of the bones difficult, the diagnosis must be made upon the other symptoms rather than upon the actual demonstration of the motion. In certain of the cases, and in most of these a definite hypertrophic arthritic (osteo-arthritic) process existed, not only was no motion demonstrable, but in all probability as the result of the disease the bones had become fused.

The disability or discomfort in disease or weakness of these articulations also varied considerably. In the severe cases it is very great. Any motion in which the trunk or thigh muscles are used, whatever the position of the body, necessarily causes the bones to slip about or the joint to be strained. In the severest cases standing or walking is impossible, the patients describing the sensation as "breaking apart in the middle," or as the body "settling down into the thighs." With some the upright position and even walking is possible for a few minutes, the bones apparently being held by strong muscular effort, but as soon as this relaxes, either from fatigue or in unexpected motion, the helplessness at once returns. In the mildest cases the symptoms have been so vague that the exact nature of the difficulty has been appreciated only by a most careful process of elimination.

Of the symptoms which have been associated with this condition there is apparently quite a

wide range. In the most extreme degree of relaxation or disease the helplessness is profound, nothing but recumbency being possible, and the slightest motion, such as raising the knee or moving the foot, being associated with definite movement of the pelvic joints with consequent pain and discomfort. When perfectly quiet there is little pain other than backache, and this is worse after sleep, during which the spinal muscles become relaxed and the joint strain is increased. All three of the pelvic articulations may be tender to pressure, and the abnormal mobility may be easily demonstrable. In some of the cases sitting is impossible unless the weight of the body is supported, usually by placing the elbows on the knees or by holding the seat of the chair with the hands. On walking, the movement of the buttocks up and down may be quite evident.

In the cases in which the relaxation or disease is less marked the symptoms vary more, both as to the nature of the special symptoms, and as to their constancy. At times, only at the menstrual period is there any trouble or are the symptoms severe enough to cause much inconvenience.

Probably the most common complaint is of backache, referred at times definitely to the sacro-iliac articulations, but often simply to the sacral region. This is usually worse on lying upon the back or with any back straining exercise or occupation carried to the point of fatigue. When lying upon the back, the flattening of the lumbar spine necessarily strains the sacro-iliac ligaments and is evidently the cause of the backache. As this takes place only when the muscles are relaxed, it explains the pain developing during sleep, the patient often being wakened with the severe suffering. This is usually relieved by stretching or by some other change of position in which the lumbar spine and the sacrum are drawn up. The backache which develops when the patient is up and about may be brought on by any posture which causes strain on the sacral ligaments, such as lounging, sitting with the lumbar spine thrown back, or prolonged standing and walking. At times the backache is produced by a jar or by some sudden misstep in which the muscles are taken off their guard. At such times there is, as a rule, a distinct sensation of slipping or giving out, and the leg may actually "give way" just as the knee joint locks or "gives way" if caught with a loose cartilage. The pain or backache may be referred to one synchondrosis or both, and with this there may be discomfort referred to the symphysis. In the cases in which the pain has been referred at first to one synchondrosis there has nearly always developed sooner or later a similar condition upon the other side, although frequently of less severity.

Referred pains are quite common, and are probably due to the pressure or pull upon the nerves in the sacral region. The lumbo-sacral cord passes directly over the upper part of the sacro-iliac articulation (Fig. 5), and it is easy to see that a slight displacement or the thickening or nodes resulting from disease might cause pressure upon this nerve trunk. Undoubtedly the pressure or irritation of the nerve received in this way causes many of the pains referred to leg. They may be referred to any part below the seat of the trouble, to the thigh, the hip, the calf, or down the back of the leg following the sciatic distribution. These pains are practically always more upon one side than the other, but usually both sides are somewhat affected, and this, together with the fluctuation in the character of the pain, suddenly coming on or passing off, is of importance in differentiating between this condition and other conditions in which leg pains occur. That the nerves are pressed upon or irritated is not to be wondered at when the anatomy is considered. In fact, in any displacement which may occur, or in the hypertrophic arthritic thickening, the edge of the bone is so exposed that pressure or irritation of the nerve is almost to be expected. The severity of the pain is at times very great. In two of the patients it was so intense that lying down was impossible and the nights were spent pillowed up in chairs.

OBJECTIVE SYMPTOMS: The objective symptoms are such as would be expected from our knowledge of the condition. The motions which would bring strain upon the weak part are guarded, in the severe cases this reflex guarding leading to great disability. It may be impossible without assistance to get up or to lie down. Stooping is always made guardedly and in the severe cases this may be impossible unless the knees are flexed and the spasm of the hamstring muscles released. On standing, if the sacrum is at all displaced, the lumbar curve of the spine may be obliterated (Fig. 6) or even reversed; the whole attitude being suggestively peculiar. If one side is more involved than the other, a marked lateral deviation of the body may be present (Fig. 7), this always being away from the affected joint. A slight degree of this lateral deviation is very common.

Forward bending, if attempted when standing with the knees straight, is limited, but is always more free if the knees are flexed, as when sitting. In the first position the hamstring muscles which are attached at the tuberosity of the ischium are made tense, and by causing strain upon the sacro-iliac articulations develop the muscular spasm. When the knees are flexed the hamstring muscles are relaxed and the spinal motions can be made more freely.

Lateral bending is usually somewhat guarded, and if one side is more involved than the other the motion will vary accordingly, always being most guarded when the side chiefly affected is most strained.

It will be found that when the pelvis is firmly held all of the motions are much more free, especially if they are made passively so that the muscular pull upon the bones involved in these articulations is relieved. This is of considerable importance in differentiating the limitation of motion due to an hypertrophic arthritic (osteo-

arthritic) spinal process, in which there may be referred pains. In the latter the limitation would be constant and would not change noticeably with change of position or change of support.

The hip motions are free, except as the motion causes strain upon the pelvic articulations. In the severe cases this may mean marked limitation, and in the mild ones scarcely any may be present. Abduction with the thigh flexed is likely to develop pain, and raising the leg with the knee straight is almost always somewhat limited. In the extreme cases, with the knee straight it may not be possible to flex the thigh at all, the limitation in this being due to the spasm of the hamstring muscles. This same feature was noted in testing the spinal motions. there the spine was moved upon the thigh; here the leg is moved upon the body. This hamstring spasm also gives rise to a peculiarity in gait, which at times is quite striking. In taking the step the knee can be drawn up without difficulty, but as the leg straightens the spasm develops and the foot is drawn or almost jerked backward, so that in the extreme cases the foot may strike the ground little in advance of its position when the step began.

If the symptoms are due to an hypertrophic arthritic (osteo-arthritic) process or some of the inflammatory processes in the sacro-iliac articulations, the lessened use together with the constant nerve irritation may result in muscular atrophy of the buttock and leg, which can be both felt and measured.

The tenderness over the affected articulation is usually present and in the cases of simple relaxation commonly all three articulations present this feature.

The demonstration of the mobility of the affected joints is possible in several ways. Forced hyperextension of the thighs, one at a time, thus moving the ilia away from the sacrum, may be sufficient. At other times with the patient standing, one hand is held over the sacrum while the pubic bones are held between the thumb and finger of the other hand. If the patient now raises first one knee and then the other, the motion is often quite distinct. If the crests of the ilia are grasped with the two hands, the thumbs resting upon the sacrum, and the patient raises the legs as above, the mobility is also often apparent. Another method is to have the patient lie down and raise first one leg and then the other with the knee straight. In doing this there is usually enough motion to be apparent to the patient or to be felt at the symphysis. At times it is not, of course, possible to demonstrate motion, but in these cases the fact that there is some lesion of the joint can usually be determined by some of these movements causing strain of the joints and developing pain at the seat of the lesion.

The demonstration of disease of any one of the joints can usually be determined by the pain produced by strain of that joint, by the atrophy of the muscles adjacent to or below the diseased joint, by the attitude in standing or walking, by the limitation of motion, and by the local tenderness or swelling which may be palpated in the back over the articulation or anteriorly through the rectum or vagina. The character of the disease will be determined by the general appearance of the patient and the appearance locally; that is, the presence or absence of an abscess, the presence or absence of a tumor, suggesting a new growth, and the presence or absence of the same disease in other joints. In the hypertrophic arthritic process, which is by far the most common form of disease seen in the sacro-iliac articulations, there almost always is at the same time disease of the spine with the limitation of motion and other symptoms characteristic of the disease in that region.

Treatment: The treatment of these conditions consists essentially in protection of the joints, with previous replacement of the bones should subluxations exist. In the severe cases complete immobilization with relief from all strain is necessary, while in the mild cases restriction of motion or lessening of the strain may be all that is required. In tubercular disease and osteomyelitis it is sometimes necessary to remove portions of the diseased bone, but with these exceptions operations are not apparently required in these pelvic joint lesions. In planning the treatment it is to be remembered that the involvement of the symphysis pubis, with the exception of a few very rare inflammatory conditions, is to be considered as secondary to the relaxation or disease of the sacro-iliac articulations, and the treatment for the anterior joint is distinctly secondary to the treatment of the joints at the back.

The treatment of the given case depends, of course, upon the extent of the lesion and the nature of its pathology. If, as is seen frequently in the traumatic or relaxed cases, the bones are not in correct apposition, this should, of course, be corrected. The malposition which has been most commonly seen is a true backward subluxation of the upper part of the sacrum. In a few cases the deformity and the position of the bones suggest either a unilateral subluxation of the sacrum backward away from the ilium or, as has seemed probable in one or two cases, a displacement backward and also downward.

The correction of the subluxation may be brought about in several ways. At times simply hyperextending the spine considerably by having the patient lie with a firm pillow under the "hollow of the back," may, by raising the lumbar spine, draw the sacrum into place. At other times the same thing may be accomplished by having the patient lie face downward with the thighs and legs supported upon one table, the head and shoulders upon another, the body hanging entirely unsupported between. In this position the weight of the body drags the spine forward, which favors the replacement of the sacrum. If this is successful the plaster jacket which is to hold the spine and the pelvic joints may be applied before the patient is moved.

At times more definite pressure over the sacrum

apparently is needed, and for this the frame (Fig. 8) which is in use for the application of plaster of Paris jackets in cases of Pott's disease works admirably. In using this the flexible rods (Fig. 8a) should be bent with a sharp curve low down, so that the greatest pressure is upon the upper part of the sacrum and the low lumbar spine. In this position the weight of the body tends to force the sacrum forward, with usually sudden marked relief as the bones slip into place. While in this position the plaster of Paris jacket should be applied, the steels being incorporated and removed when the jacket is thoroughly hard.

Occasionally suspension or hyperextension of the spine while standing may correct the position, and in one instance ether was given to obtain sufficient muscular relaxation to force the sacrum into place.

After the bones are once in place in these cases, they should be held there by means of some fixed support, and for this purpose the plaster of Paris jacket is probably the best. This should be fitted well down over the buttocks and the anterior part of the thigh, so that the pelvic bones are really held. At the top, the jacket should be carried well up the thorax in order to hold the spine hyperextended, and at the same time to prevent the lower part of the jacket from riding up and releasing its hold upon the pelvis.

If the bones cannot be held by the jacket alone the plaster dressing should be carried down the thigh, making a spica bandage, and in the extreme cases including both thighs. During this period the patient should, of course, be kept in bed.

If the case is one of recent injury the principles of treatment are the same as those applicable to sprain of any of the other joints, except that from the shape of the pelvic articulations the period of complete fixation must be longer. Rest or complete fixation is necessary for three or four weeks, and during this time whether the patient remain in bed or is allowed up in a jacket must be determined by the symptoms. After this a removable jacket or some form of support should be worn for two or three months, considerable attention being paid during the latter part of the period to exercises and massage in order to have the muscles of sufficient strength when the supports are removed.

If the case be one of extreme relaxation of the ligaments, recumbency in a jacket or some equivalent support may be necessary. This is particularly apt to be needed in stout women in whom it is hard to adequately support the bones when they are about.

The majority of cases do not need actual recumbency. In the joint strains or the relaxations without displacement of the bones which represent the large proportion of the total number of the cases some form of support is all that is necessary, and frequently there need be little interruption in the usual routine of life.

Of the various forms of support which have been used to relieve the strain upon these joints, without question in the most severe cases the plaster of Paris or the stiffened leather jackets are the most satisfactory, although in very stout cases accurate pressure upon the pelvic bones is difficult to obtain. If a jacket is used it should be fitted well down over the trochanters, so that the pelvis is really held. Ordinarily the best position for the application of the jacket is with the patient standing and the arms raised about shoulder high, the hands holding some support, the lumbar spine being at the same time moderately hyperextended.

In case these are not considered advisable, a spring steel back brace may be sufficient (Fig. 9), the uprights being fitted in well at the bottom so that firm pressure is made over the upper part of the sacrum.

At other times in women a wide webbing belt attached to the base of the corsets, and kept from wrinkling by the insertion of light steels, gives enough pelvic support to relieve symptoms. In men the same principle can be used by making a low corset out of the webbing used for the belt. Such belts can be made more efficacious by attaching a firm pad in the back so as to make pressure over the upper part of the sacrum.

In many of the cases much relief has been obtained by using woven elastic trunks, fitted about each thigh, and then about the buttocks (Fig. 10). These are laced or buckled, so that the pressure may be controlled, and represent one of the most reliable of the various supports.

Another support and one which has probably been more satisfactory than any other, except possibly the elastic trunks, has been devised (Osgood), and is pictured in Fig. 11. It consists of a sacral pad to which a spring steel crib is attached. The ends of the crib curve backward, and to these wide webbing belts are attached, which, when fastened in front, because of the curve in the crib part of the brace, crowd the sacral pad firmly against the upper half of the sacrum. The brace is kept in place by attaching it to the corsets by means of steels, as shown in the figure, and these not only hold the brace down, but, by steadying the lumbar spine, at the same time lessen the tendency to strain the sacro-iliac joints. In order to keep the brace in place when sitting a narrow strap is attached at the base of the crib, which is tightened when the thighs are flexed and prevents the brace from springing away from the body. This brace, in connection with the elastic trunks in the severe cases, has given relief when either alone was not satisfactory.

In certain cases, and naturally these are the cases of acute strain or injury, strapping of the back with strips of adhesive plaster gives much relief. The strips should extend from the anterior part of the ilium on one side to a similar point upon the other side, and these should be carried up and down until the buttock and the lower part of the lumbar spine are covered. The dressing at times is more satisfactory if a pad of felt is put under it to make pressure over the sacrum. If such a dressing is used it should be reapplied after four or five days.

In planning relief for these patients it is to be

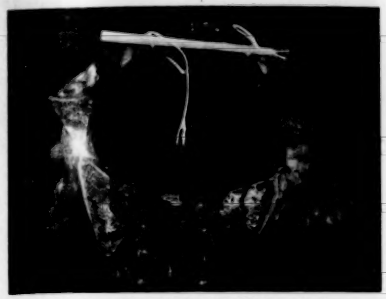

FIG. 1. Sacro-iliac articulations with bones in place.

FIG. 2. Sacro-iliac articulations with the sacrum slightly tilted showing the separation of the iliac at the pubis as well as at the back.

FIG. 3. Hypertrophic arthritis of spine and sacro-iliac articulations with fusion of both of these pelvic joints.

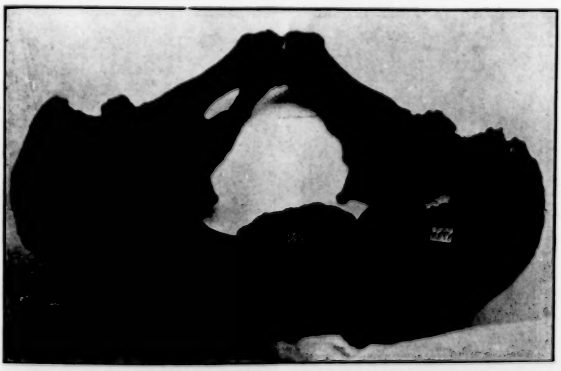

FIG. 4. Hypertrophic arthritis, showing the fusion of one sacro-iliac articulation, the other one (the left) being freely movable.

FIG. 5. Articulated pelvis with the sacrum tilted backward at the top the normal amount, showing the exposed edge of the iliac portion of the articulation over which the lumbo-sacral cord passes.

FIG. 6.

FIG. 7.

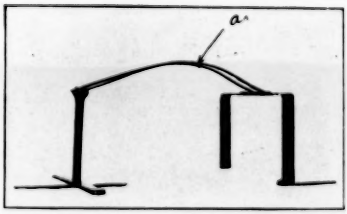

FIG. 8.

FIG. 9.

Fig. 10.

Fig. 12. — Sacral brace applied.

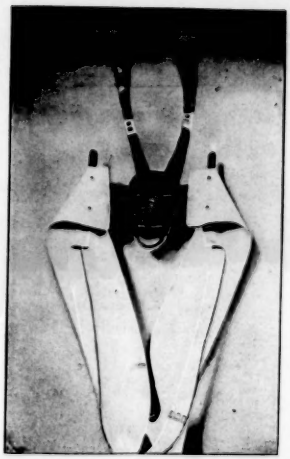

Fig. 11. — Sacral brace.

remembered that some form of support for the bones during recumbency is of quite as much importance as that for ambulatory use, the night pain being often the most severe. For this purpose a firm pillow under the hollow of the back is frequently sufficient, and this should be used under the side if the position is changed from the back. The strain upon the back is also lessened, because of the effect upon the hamstring muscles, by using a small pillow under the knees.

At other times the elastic webbing trunks give great relief for night support, while in some of the extreme cases plaster of Paris beds, fitted so that the back, sacrum, buttocks, and thighs, are all supported, are used.

Considering the fact that in women the subluxation of the joints has been so much associated with conditions of congestion of the pelvic organs, such as menstruation and pregnancy, it was considered advisable in certain persistent troublesome cases to have existing pathological pelvic conditions corrected before the joint lesion was treated. In one of these a fibroid tumor of the uterus was removed at the Massachusetts General Hospital. In another a plastic operation was performed by Dr. Edward Reynolds upon the cervix and perineum, hoping that in the better subinvolution, the pelvic joints would also become more firm. In both of these cases improvement of the joint condition seemed to develop more rapidly than before the operation, but so few cases can, of course, only be suggestive. Such a procedure, however, seems reasonable to the writers, and that this or any other form of treatment which serves to bring about more normal conditions of the pelvic circulation should be tried for the definite purpose of at the same time improving the circulation in the pelvic articulations and consequently adding to their stability.

The length of time required for treatment in a given case depends upon many things. In a wrench or strain without much displacement of the bones, strapping for three or four weeks followed by a corset belt for a few weeks longer may be all that is necessary. If the condition still represents an injury, only more severe, the treatment must be kept up for a longer period, the duration and the completeness of the fixation depending upon the severity of the injury. It should always be remembered in such cases that as the sacrum and ilia are held in place almost entirely by ligaments without bone sockets or other supports, the treatment in lesions of these joints should be continued for a considerably longer time than in other articulations where the ligamentous support is less important.

In the cases in which the symptoms are due to hypertrophic arthritis, tuberculosis, or inflammatory processes, the condition in these articulations should be treated in the same manner as a like condition in any other joints.

In the relaxed cases associated with pregnancy the patient may be allowed up with the support on three weeks after delivery, and the support should be worn until two or three menstrual periods, if the mother is not nursing, have passed without trouble. If nursing prevents the menstruation, the support should be worn for at least three months.

In some of the relaxed cases associated with menstruation without pregnancy or which are part of a general relaxation it may be necessary to wear some form of support for an indefinite period.

In the cases in which the weakness has been associated with menstruation, or in which the weakness has followed pregnancy and gone on untreated, it seems probable that in case pregnancy should occur and the bones were properly supported during that period, that benefit rather than injury would result. The acute congestion of the joints occurring at such a time should act, as acute congestion in other chronic joint conditions acts, to stimulate more complete and more rapid repair.

The following cases are reported as illustrative of different types of pelvic joint disease, and their behavior under treatment.

(Illustrative cases will follow in the next number.)

A CASE OF FOREIGN BODY IN THE ESOPHAGUS.*

BY A. COOLIDGE, JR., M.D., BOSTON.

THE following case is briefly reported as showing a unique expedient adopted in connection with Killian's straight tubes for the removal of a safety pin from the esophagus.

M. H., a woman, twenty years old, was admitted to the Massachusetts General Hospital Nov. 10, 1904, from the Convalescent Home, where she had been under observation for hysteria. Dr. Beach, in whose service she was admitted, kindly turned the case over to me. Fourteen hours before admission she had accidentally swallowed a large safety pin. She complained of a "sticking pain," especially on deep inspiration, in the region of the thoracic vertebræ. X-ray showed the pin open, point up, about 4 cm. above the transmammary line, a little to the left of the median line on the same level as the pain in the back. The

patient was etherized and although the pin was seen through the esophagoscope and seized by the head, the point was firmly pinned into the esophageal wall. The operation was abandoned, as the patient did not take ether well and I was afraid of pushing the pin into the stomach with the incomplete set of instruments on hand. Two days later she was again etherized and put into the Rose position. With Kirstein's autoscope, the pyriform sinus was brought into view. A tube made in the meantime after Killian's pattern, and 13

*Read before the New England Otological and Laryngological Society, March 17, 1905.

cm. in diameter was threaded on to an esophageal gum elastic bougie. The bougie was passed under control of sight into the esophagus, the tube was passed over it, the bougie withdrawn and the end of the tube carried ten inches from the teeth into the esophagus. The head of the pin then came into view, and during inspiration the walls of the esophagus opened up momentarily showing the whole pin. The head of the pin was seized with Killian's forceps through the tube. The point was firmly imbedded, and it was detached by pushing the whole pin downwards, but on attempts at removal, the point immediately caught in the esophageal wall. Before the operation, Dr. Mosher had suggested and made an ingenious device for closing the pin *in situ*. This consisted of a metal ring, 13 cm. in diameter, attached by the border at a right angle to a stiff wire shaft. This was passed down the esophagus outside the tube, and the ring passed over the hinge of the safety pin. The pin was then forcibly pushed down into the ring and was thereby shut up, the point and head being brought nearly together. The pin was then extracted engaged in the ring. The light used was at first the electric head lamp, but as this became hot it was discarded, and reflected light with a head mirror substituted. The patient complained of pain in swallowing for a few days, but this soon disappeared and she was discharged well on Nov. 19, and is well at the present time.

In my experience the passing of Killian's tubes into the trachea and esophagus presents no great difficulties. With Kirstein's autoscope the arytenoids and pyriform sinus are brought into view, and the tube passed into the larynx or esophagus under direct inspection of the eye. I have found the older model of autoscope with a hood to press back upon the upper teeth and lip convenient and easily handled. When the tube has entered the trachea or esophaous the hood is removed and the autoscope withdrawn. As the trachea and bronchi stand open the field may be seen for a considerable distance ahead of the tube. In the esophagus the walls are collapsed and care must be taken not to push the tube by the foreign body without seeing it. During inspiration, however, a certain amount of air enters through the tube and the walls of the esophagus momentarily separate, enough to aid materially in the search. The illumination may be either by reflected light from a head mirror or by a special electric lamp on the forehead, or attached to the upper end of the tube, or carried down the tube to its farther end. The former is easier to obtain and generally gives a more even light. Its great disadvantage lies in the necessity of adjusting it for every movement. The electric lights require apparatus liable to get out of order and to become hot, but when they work well they are very satisfactory.

It is important to have proper instruments at hand to extract the foreign body after it is found. Nothing is more tantalizing than to have your quarry in full sight and not be able to reach it or hold it. I have used the extracting forceps of Killian successfully, but I have been struck by the difficulty in controlling the movements of the grasping blades. I have, therefore, devised a similar instrument in which the operator's hand is out of the line of the axis of vision.

Limiting myself to the esophagus, I believe that few foreign bodies, unless they have become very firmly attached to the walls, will fail to be found by these tubes and removed if they can be grasped. Not only for foreign bodies but for other conditions which suggest themselves the esophagoscope is applicable.

A general anesthetic is not necessarily required. The whole length of the esophagus may sometimes be explored with no more discomfort to the patient than is involved in passing a large probang. If a general anesthetic is used it is well to give atropia subcutaneously and to cocainize the pharynx. This is important in case the trachea is to be explored, to diminish the danger of respiratory shock. Secretions may be removed by absorbent cotton on a carrier through the tube or by a special pump.

CONSERVATIVE OPERATION ON THE OVARIES AND TUBES: ANALYSIS OF NINETY CASES.

BY R. G. WADSWORTH, M.D., BOSTON,
Assistant Surgeon to Out-Patients, Free Hospital for Women.

THAT conservatism in the treatment of disease of the ovaries and tubes is now firmly established and widely practised is amply shown by the ever-increasing amount of literature on the subject which has appeared in the last few years. Many convincing papers have been published showing the vastly better results which have been attained by an effort to save to the patient not only healthy organs which were formerly sacrificed but even healthy fragments of partially diseased ovaries and tubes. It is, therefore, not my purpose to offer an argument in favor of conservatism. But even if a certain operation or operative policy is firmly established, the collection and classifying of the after-histories in large series of cases cannot be too often repeated as it is only by the study of results obtained by many different operators in a very large number of cases that a true idea of its merits and defects can be obtained, and it is the purpose of this paper to add such a collection to the many which have already appeared.

Of the cases who have undergone conservative operation on the ovaries or tubes at the Free Hospital for Women, I have been able to obtain the after-histories in ninety. The work of many different surgeons and in consequence some minor differences in technique are represented in this series, and for that reason it offers a broader basis for conclusions than would be the case were the work of only one operator represented. All cases on whom any operation on the ovaries and tubes was performed, short of their complete removal, have been taken, and all grades of plastic surgery are included. Under the term "resection of the ovary" I have included puncture of cystic follicles with or without suture.

One ovary was resected in 22 cases, one ovary removed in 42, one ovary removed and the other resected in 12, both ovaries resected in 8, one or both ovaries suspended in 5. One tube was resected in 5 cases, one tube removed in 23, one

tube removed and other resected in 4, both tubes resected in 1, and one or both tubes simply freed from adhesions in 12. In 52 cases the uterus was retroverted and was replaced by ventral suspension in 40, and by intra-abdominal shortening of the round ligaments in 12. In 19 cases laceration of the cervix or perineum was repaired.

In only 3 cases was there a definite history of gonorrhea. In 7 others the history and findings at operation were suggestive of such a previous condition, but there was no definite statement to that effect. In the remaining 80 cases this element was entirely lacking.

The average age is a little over thirty years, the youngest being eighteen and the oldest fifty. Twenty-four were single and 66 married, and of the latter, 55 had borne one or more children previous to operation.

The interval since operation varies from one to fourteen years. The series could have been considerably increased had cases who have been heard from less than a year but more than six months after operation been included, but I have been unwilling to do this, believing that a fair estimate of results in such operations cannot be obtained in less than one year.

The after-histories have been obtained with a very few exceptions by means of a set of questions which the patients have answered through the mail. For this reason I am unable to report the anatomical results except in those cases who have undergone secondary operation; but otherwise a fairly accurate idea of the end result has, I believe, been obtained.

In the classification of symptomatic results I have grouped the cases under three heads: cured, relieved and not relieved. Under the first are included only those cases who have reported complete relief of all symptoms without qualification, and under the third, those cases who have reported no relief of any kind. The cases which have been grouped under the head of relieved vary very considerably in the amount of relief obtained, but all consider themselves better than before operation. In regard to these it should be remembered that, as the data have been obtained only through the written statements of the patients, it has been impossible to allow for the personal equation. It is, therefore, probable that there are many cases in whom everything that could be reasonably expected of the operation has been accomplished but in whom the necessity of returning to work too soon or the existence of worries and cares at home or a neurasthenic temperament have been responsible for the lack of complete relief.

Taking the series as a whole, 51% have been cured, 35.5% relieved and 13.5% not relieved. In 52 of the 90 cases, however, retroversion of the uterus was corrected and in many of them lacerations repaired. These cases should be considered as a separate group since in them the symptomatic result is only in part due to the operations on the appendages. Of these 52 cases then, 48% have been cured, 36.5% relieved, and 15.5% not relieved; while of the remaining 38 cases, in whom the appendages only were diseased, 55.5% have been cured, 34% relieved and 10.5% not relieved.

That the cases in whom multiple operations are necessary should show a higher percentage of failure is to be expected in view of the more extensive surgical interference to which they are subjected, and to the fact that in these cases the symptomatology is usually of longer duration and of greater severity.

Of the 12 cases in whom there was no relief, 5 were operated a second time, four months to two years later. These I shall speak of again.

Of the seven remaining cases, the first, thirty-two years old and unmarried, had complained of dysmenorrhea, backache and menorrhagia for eighteen months. Dudley's operation for anteflexion, although anatomically successful, gave no relief, and eight months later the abdomen was opened for enlargement of the left ovary, which was not present at the time of the first operation. The ovary was found to be cystic and was resected. Three small uterine fibroids and the appendix, which, however, appeared to be normal, were also removed. One year later there was no relief.

The second case, twenty-five years old and unmarried, had suffered from severe pelvic symptoms for sixteen months, coming on without apparent cause and also severe dysmenorrhea since the periods began. The uterus was retroverted but the ovaries and tubes were normal except for a slight cyst in the right ovary. This was punctured but not sutured and the uterus suspended. Six and one-half years later, she reports no improvement. She has been married but has not become pregnant.

The third case, twenty-nine years old and unmarried, had had severe backache and right sided pain for four years, which kept her from work. The utero-sacral ligaments having been stretched under ether five months before without relief, the left ligament was divided through the vagina, and the abdomen then opened. The right ovary was prolapsed and was replaced by puckering the ovarian ligament, the uterus being suspended to the anterior wall. Two years later there was no improvement and examination showed that the right ovary was again prolapsed, the uterus, however, being in good position and the left appendages normal.

The fourth case, twenty-nine years old and married, had complained of increasing pelvic pain for ten years. Operation showed adhesions about the left ovary and tube. These were broken up and the ovary resected, retroversion being corrected by shortening the round ligaments. The right ovary and tube were normal. Five years later, she considers herself, if anything, worse than before operation.

In the fifth case, the symptoms dated from a miscarriage, evidently followed by infection, seven years before. Both ovaries and tubes were adherent behind the uterus. The left ovary was cystic and was removed with its tube, and the uterus replaced by shortening the round ligaments. The right ovary and tube were normal. Three years later she reports no relief, her present symptoms being evidently due to adhesions.

The sixth case, nineteen years old and unmarried, had had severe pelvic pain for only four weeks. Operation was performed through the posterior vaginal vault. The left appendages were normal. On the right the ovary and tube were buried in a mass of adhesions. This was tied off with catgut and removed *en bloc* and the wound drained with iodoform gauze. The convalescence was delayed by the necessity of

draining a necrotic cicatrix behind the cervix. A year and a half later the patient reports herself worse than before. If the appendix was the origin of the inflammatory condition in this case, which is suggested by the fact that the symptoms had been present only four weeks and that the right side of the pelvis only was involved, the continued presence of this organ, which it was of course impossible to remove through the vagina, would account for the persistence of symptoms. Had the abdominal route been chosen, it is at least probable that a better result would have been obtained.

The last case had had severe backache and left-sided pain for eight years following instrumental delivery of her first and only child. The uterus was retroverted and adherent; there being also extensive adhesions about the ovaries and tubes. These were separated, a cyst in the left ovary punctured and the uterus replaced by shortening the round ligaments. She was discharged as cured in about three weeks, but two weeks later died at the Frost Hospital in Chelsea. The diagnosis was general peritonitis. Inquiry at the hospital shows that no history was obtained as the patient was comatose when brought in, and died in a few hours. There was no autopsy, but it seems probable that the gut had been injured during the separation of adhesions and that perforation occurred.

The frequency with which a secondary operation becomes necessary after the conservative treatment of ovarian or tubal disease has been variously estimated by different observers. Polak found that secondary operation was necessary in 13% in a series of 161 cases. Coe found it necessary in over 5%, but does not give the number of cases on which his conclusion is based. Manton, in 53 patients, performed a second operation in 3, about 6%. Burrage reports 4 secondary operations in a series of 85 cases but in 4 more a second operation would have been done had the patients consented, so that his percentage should be reckoned at 9.5%. It is to be regretted that Palmer Dudley, in his analysis of 2,168 cases, published about a year ago, gives no figures on this point, as this is by far the largest series that has yet been reported.

In this series, 15 cases, or 16⅔%, have had a second operation. In 13 of these there was recurrence of cystic disease in a resected ovary or its appearance in the ovary which was normal at the time of the removal of the other for cystic disease. In 5 of these 13 cases, however, retroversion which had been corrected at the first operation had recurred and formed one of the indications for operation. In the other two cases, tubal disease which had not been present at the first operation, had developed.

A review of these cases shows that in 2, one ovary was normal and the other was resected. The second operation was performed fifteen months and five years later, respectively, and in each case both ovaries were found to be cystic.

In six cases one ovary was removed for cystic degeneration, the other being normal. In all of them the remaining ovary was found to be cystic, at the second operation which was performed nine months to five years later. One of these cases is worthy of reporting. A dermoid cyst of the right ovary was removed and the round ligaments shortened for retroversion. The condition of the left ovary was not recorded at this time. Nine months later, the retroversion having recurred, the round ligaments were again shortened, and several cysts in the remaining ovary were punctured. Six months after this, the retroversion having again recurred, the abdomen was opened for the third time. The ovary was again cystic and was resected and sutured with catgut, the uterus being suspended. Two years later a ten-pound baby was born. This case is a good example of the benefit of conservatism.

In 5 cases, both ovaries being cystic, one was removed and the other resected. The second operation was performed nine months to three and one-half years later and in each case the remaining ovary was cystic. In 4 of these 5 cases, there was very slight and temporary or no relief after the first operation. In two of them extensive adhesions had been divided and had recurred. One case considered herself cured for two and one-half years, when she was kicked in the abdomen by a horse. This accident was immediately followed by bloody diarrhea for three days, recurring every two or three weeks for a year, when the second operation was performed. Extensive intestinal adhesions were divided and the remaining ovary, which was considerably enlarged, resected. In view of the fact that this patient had been free from symptoms for over two years after the first operation, it may well be that the recurrence of the cystic degeneration was directly dependent on the disturbance in the nutrition of the ovary from the adhesions about it and that had the accident not occurred, no further trouble would have been experienced.

Of the 2 remaining cases, in one, both ovaries were cystic, but only one was removed, the other being let alone. The round ligaments were shortened for retroversion. Four months later, she was operated on at the Massachusetts General Hospital, the remaining ovary being removed and the uterus suspended.

In the other case the uterus was retroverted and both ovaries and tubes prolapsed and adherent behind the fundus. The adhesions were separated and the left tube resected, leaving about two inches, the right tube not being interfered with, although it was somewhat thickened. The uterus was replaced by puckering the round ligaments. The condition of the ovaries was not recorded. For six months there was relief, but then the same symptoms recurred. The second operation, just a year after the first, showed retroversion, right hydrosalpinx and a cystic right ovary. The right tube and ovary were removed, adhesions about the stump of the left tube and ovary separated, and the uterus suspended. This patient gave a history of exposure to infection before the first operation, and it is very probable that the necessity for a second operation finds its cause in a similar exposure. I have been unable to obtain any subsequent history.

It is of interest to consider those cases in whom secondary operation was necessitated by

the reappearance of cystic disease in the ovaries in connection with the other cases in whom similar pathological conditions in the ovaries were present.

Thus in 64 cases in whom one ovary was normal and the other was either resected or removed for cystic disease, 7 or 11 % have come to second operation, while in 20 cases in whom both ovaries were cystic, and part of one or both were saved, 6 or 30 % have had a second operation.

In regard to the occurrence of pregnancy after operation, several factors must be considered as in themselves precluding the possibility of such an occurrence. Thus, those cases in whom subsequent oophorectomy or hysterectomy was performed, as also those who have become widows or have remained single must be excluded. Moreover, in patients over forty-five years of age, pregnancy is so unlikely to occur that they may also be excluded. On the other hand, those who have married since operation must be added.

Allowing then, for the cases to whom these factors apply, there are 64 in whom there was a possibility of future pregnancy. Of these, 17 or 26.5% have become pregnant, 13 or 20% having a normal delivery at term, and 4 one or more miscarriages.

In 12 of the 17 cases, one normal ovary and tube was left, while the other ovary was either resected or removed. In three of them retroversion of the uterus was also corrected and in one the cervix and perineum repaired. Of these 12 cases, 2 have been married since operation, and one had been married two years but had not been pregnant. The other 9 had all had children before operation.

In 3 of the remaining 5 cases, one ovary was removed and the other resected. All had had children before operation.

One of them is the case already described as having had a dermoid cyst of one ovary removed and the other resected twice.

In the second case, the uterus was curetted and the cervix and perineum removed. The right ovary was then removed, numerous cysts in the other punctured and the ovary sutured to the fundus, the round ligament being shortened for retroversion. Normal delivery occurred three years later.

The third case is of especial interest. One ovary was removed with its tube and a large cyst excised from the other, the remaining tube being normal. Five years later, well developed twins, weighing 8 and 9 pounds, were born.

Of the remaining two cases, one was delivered at term, sixteen months after both ovaries had been resected and the uterus suspended. In this case the pregnancy began about seven months after operation.

The last case gave a history of gonorrhea four years before operation. The uterus was retroverted and adherent, the right tube being prolapsed and adherent behind it. This tube was removed, the right ovary sutured to the fundus and the uterus suspended. The condition of the left ovary and tube was not stated. Two and one-half years later the patient was delivered at term.

In considering these cases of subsequent pregnancy it is worthy of note that of those who had borne children before operation 28% became pregnant afterwards, while of those married women who had been sterile before operation, less than 10% became pregnant.

A summary of the results embodied in this report may be stated as follows:

Considering the cases together without regard to the extent or multiplicity of operation, partial or complete symptomatic relief has been obtained in 86.5%. Multiple operations give less good results as a whole than operations on the appendages alone, there being half again as large a percentage of failures in the former class.

When both ovaries are cystic and part of one or both are saved, the chance of secondary operation for recurrence of cystic disease is nearly three times as great as in those cases where one normal ovary is present.

Subsequent pregnancy has occurred in 26.5%. In estimating the likelihood of this occurrence in any given case, it may be stated that the fact that the patient has borne children before operation nearly triples the chance of subsequent pregnancy.

New Instruments.

A NEW TUBE FORCEPS AND A NEW COTTON CARRIER.

BY A. COOLIDGE, JR., BOSTON.

TUBE FORCEPS.

In the forceps devised by Killian in connection with his straight tubes for the extraction of foreign bodies from the bronchi and esophagus, the handle is in direct line with the shaft so that either the operator's hand is between his eye and the speculum or the shaft of the forceps is bowed, making it difficult to control the grasping end. To overcome this I have had a forceps made in

which the handle is attached at right angles to the central shaft, carrying the blades. The barrel or tube surrounding the central shaft is pushed down on to and closes the blades by the action of a trigger operated by the forefinger, the rest of the hand maintaining a firm hold of the handle. The operator is thus able to look along the shaft of the instrument without bending it, and to control the farther end under direct

inspection. The central shaft is screwed into the handle so that it can be adjusted to open in any direction, and as the blades are closed by pushing the barrel on to them, not by pulling them into the barrel, they do not draw away from the object to be seized, at the moment of grasping. I have with this instrument by lower bronchoscopy removed a prune stone firmly impacted in the right bronchus.

COTTON CARRIER.

In the esophagus the detachment from the carrier of the cotton used in sponging is of no great importance, but in a bronchus it might be very serious. I have seen the cotton come out of Killian's carrier, in which the blades are held together by a ring pushed down upon them. In order to lock the cotton securely I have had made

instead of the ring, which is pushed down to shut the blades, a section of tube two inches long. On the shaft of the carrier, about two inches from the end, is a collar, cut with a screw thread. The lower part of the barrel being of a larger caliber slides over the collar, but the upper part engages in the screw. The carrier is firmly locked upon the cotton by a half-dozen to a dozen revolutions of the barrel, screwing it downwards upon the blades.

Both of these instruments were made by Codman & Shurtleff, Boston.

Clinical Department.

CARCINOMA OF THE FALLOPIAN TUBES.

BY C. H. HARE, M.D., BOSTON,

Gynecologist to Boston Dispensary and to Woman's Charity Club Hospital and to Out-Patients at Carney Hospital and St. Elizabeth's Hospital.

THE writer's part in this case is short and very ordinary. The entire interest is in Dr. Leary's pathological report and his review of the literature.

Mrs. 3321 entered St. Elizabeth's Hospital in April, 1904. Age twenty-nine; married four years. The family history including four sisters was negative. Menstruation began at fourteen and had always been regular every four weeks save an amenorrhea of eight or nine months when she came from Ireland to America at the age of sixteen. So far as she could remember she had always flowed two or three days using five or six napkins, then stopping two or three days and then again flowing from three to seven days using two or three napkins daily. Dysmenorrhea was bad from the first menstruation and had kept her in bed a day or two when convenient, but for a year there had been no dysmenorrhea. Never had any leucorrhea, never any bloody staining between catamenia; micturition four or five times by day and for six or eight months once or twice by night. Never had dysuria. Constipated. No pain anywhere at present, though about three years ago she was treated in the City Hospital Out-Patient for pain in the right iliac region at which time operation was advised but refused. Weight, 145 pounds and unchanged. Sterility was her only complaint and for this alone she entered the hospital.

This history seems of necessity incomplete, yet it was not the hasty story of an unknown case, but all that the writer could obtain by much questioning after he knew the pathological diagnosis.

The urine, heart and lungs were normal, and the writer first operated April 14, 1904, supposing it to be the ordinary case of chronic tubes and retroversion. The uterine canal was three inches deep. Curetting yielded a scant amount of curettings, but an unusual bleeding. On opening the abdomen there were solid adhesions everywhere. The omentum was adherent to the bladder, to the anterior abdominal wall in the right lower quadrant and to everything under it in this region and torn pieces were removed. Tubes, ovaries, uterus, intestines, cecum and appendix were matted to whatever each touched in the pelvis, but were freed by good luck without tearing intestine. The left ovary was fair after pricking a few cysts and was not removed. The right ovary was enlarged by small cysts to three times normal size and was resected, leaving a small piece; each tube was thumb size at the fimbriated ends, but the balance, pencil size and hard, and both were removed entire by taking a wedge-shaped piece out of the uterine cornu. A small appendix buried with adhesion was removed. Ventral suspension was done. She was filled with salt solution with the hope of lessening pelvic adhesions and closed in layers. Iodized catgut was used for all the work, save kangaroo for the suspension and abdominal fascia and silkworm gut for the skin, which were removed on the tenth day. She had an unusually easy convalescence, the temperature never being recorded above 100° and pulse never over 90 after leaving the operating room.

The pathological report, Primary Carcinoma of the Fallopian Tube [1] by Dr. Leary was a total surprise to me. The writer did the second celiotomy April 29, or fifteen days after the first, going through the same abdominal incision. The fundus was solidly attached to the abdominal wall. Adhesions were solid everywhere and between everything touching. The general oozing was most troublesome. Uterus, ovaries and a piece of the omentum were removed. Three slight tears of the intestine were all seen when made and at once closed. The vaginal vault was closed and she was then filled with salt solution and the abdominal wall closed in layers without drainage. Iodized catgut was used for all work, save kangaroo in the fascia and silkworm gut in the skin, which were removed on the eighth day. The operation seemed well borne, but moderate shock followed. Convalescence was normal. Pulse was never above 90 after the fourth day. She sat up on the eighteenth day and went home May 24, apparently perfectly well and without complaints.

The patient was examined to-day and nothing abnormal found. Since September she has done her home work except the washing. She has gained four pounds in the last two months. She has had four or five attacks of rectal pain lasting twelve to twenty-four hours. An occasional pain in the right iliac region. These occurred when especially constipated and are her only complaints.

A CASE OF FOREIGN BODY IN THE LARYNX; REMOVAL; RECOVERY.

BY THOS. T. PERKINS, M.D., CLIFTONDALE, MASS.

ON the morning of Jan. 21, 1904, I examined a patient's throat, who sent word that she had swallowed a fish bone or tack while eating bread, and that she had suffered severe pain in her throat since.

[1] The full pathological report will be published by Dr. Leary.

The patient was a strong, well-developed washerwoman, forty-seven years of age. She was lying on a lounge apparently suffering severe pain. She gave the following history: On the preceding Monday, Jan. 18, she bought a loaf of baker's bread and later while eating some of it felt a sharp prick in her throat which developed into a severe pain when she tried to swallow. This pain became a constant, dull ache, in a few hours. On the following day, Tuesday, one of the city physicians sent her to the Lynn Hospital for treatment. The house officers examined her throat for a foreign body, presumably a pin or tack, but failed to find anything pathological there. They gave her a drink of water which seemed to relieve her completely for the time being, and told her to come back Friday if she had any further trouble in swallowing. As soon as she got home, the pricking pain recurred and kept growing worse. She felt chilly and sick all day Wednesday and Thursday.

When I saw her Friday morning she complained of feeling chilly, and had been unable to sleep for three days and nights on account of pain. She could swallow no solid food and had been obliged to live on small amounts of raw egg and milk. Whenever she attempted to swallow, the pain became excruciating. She said "her throat felt as though she had a thorn in it that pricked her severely."

External examination showed no swelling of the throat. Palpation revealed a tender spot on the left side of the neck, opposite the upper border of the cricoid cartilage. She complained of moderate tenderness over the entire cartilage, in fact. On internal examination, with poor illumination aided by head and laryngeal mirrors, I could find no foreign body in the mouth, tonsils, supratonsillar fossæ, nor at the base of the tongue in the glosso-epiglottic fossæ. Nor could anything be found in the region behind the posterior pillars of the fauces, nor in the oro-pharynx. Examination of the larynx, with the head tilted well back, revealed a foreign body sticking straight up from the left ventricular band, directly behind the cartilage of Wrisberg. It was white in color and not more than one-eighth of an inch of it was visible above the ventricular band. What appeared to be the blunt end of a fish bone was sharply outlined against the pink, swollen mucous membrane that covered the arytenoid cartilages.

Fig. 1.

The vocal cords were normal in color and their movements were unimpaired in adduction and abduction. The patient's voice was slightly husky. I was thoroughly satisfied that she needed immediate relief, but the difficulties to be overcome where she was were too great. It was impossible to relieve her without good illumination, cocaine and proper throat forceps.

Later at my office, her throat was first thoroughly anesthetized with a 2% solution of cocaine; then sprayed with an adrenalin chloride solution, strength 1–1000. By use of a twenty-six candle power incandescent light an attempt was then made to remove the foreign body by aid of McKenzie throat forceps.

The bone was siezed and an attempt was made to lift it out of its position, but it was so firmly imbedded it refused to yield, and the whole larynx was lifted with the bone up toward the base of the tongue. Three or four subsequent attempts gave the same result; then as there was slight bleeding, it became necessary to spray the larynx with adrenalin and anesthetize again with cocaine. Several following attempts merely succeeded in raising the bone a short distance and in loosening it a little in its bed, where it seemed lodged almost as firmly as ever. The final successful effort came after the patient had had a few minutes' rest. Forceps were introduced and the bone was lifted vigorously upwards. The moment the bone began to move from its bed, the patient jerked her head away and began retching and gagging violently. The bone, which had been freed, was knocked from the forceps,

Fig. 2.

but rested fortunately with one end against the posterior surface of the epiglottis, the other on the free surface of the ventricular band. The operator then introduced his right forefinger into the patient's larynx and hooked out the bone.

The bone proved to be an irregular sliver, presumably from a beef bone, smooth on one side and corrugated on the other. It was a trifle over 1 $\frac{1}{8}$ inches long and barely $\frac{1}{8}$ of an inch wide at the broadest part.

The larynx was again sprayed with adrenalin to check slight hemorrhage following the extraction of the bone. The patient was then given an oil spray, told to live on liquid diet and sent to her home.

I saw her the next day. The pain in her throat had ceased and she was able to swallow without difficulty. The following day she came to my office and I had an opportunity to examine her larynx. The swelling had greatly subsided and the mucous membrane had assumed a nearly normal aspect. On external examination there was no longer any tenderness over the cricoid cartilage and her voice was unaffected. I did not have an opportunity to see her again, but learned from her sister that she made an uneventful recovery.

The important lesson this case teaches is that the only safe rule to follow, when a patient believes a foreign body has lodged in the throat, is to assume there is a foreign body there until the supposition has been disproved by a most

careful and painstaking search in every nook and corner of the mouth and throat.

It also illustrates the remarkable tolerance of the human larynx, when it has once become accustomed to the presence of a foreign body lodged within its tissues.

The baking of the bone in the loaf of bread probably rendered it sterile, thus accounting for the moderate amount of inflammatory reaction that had taken place in the ventricular band.

Medical Progress.

PROGRESS IN HYGIENE.

BY CHARLES HARRINGTON, M.D., BOSTON,
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THE PROTEID NEEDS OF THE BODY.

The most important contribution made during the past year to the subject of nutrition is from the laboratory of Prof. R. H. Chittenden,[1] whose experiments, which extended over many months, show conclusively that the hitherto accepted requirement of 118 gm. of proteids daily is about twice what the body actually needs. The subjects of his experiments included men engaged in intellectual pursuits, soldiers of the United States army, and student athletes in training. Not only were they able to perform their regular work with the lessened allowance, but they performed it better and showed a marked gain in general excellence of condition. The diminished intake of proteid involved no compensatory increase in carbohydrates and fats; indeed, it appeared that the accepted standards for these components of the diet also are too high.

INTERCOMMUNICABILITY OF HUMAN AND BOVINE TUBERCULOSIS.

Among the large number of papers on the vexed question of reciprocal infectivity of the bacilli of human and bovine tuberculosis, the most noteworthy are the Interim Report of the Royal Commission and the findings of the German Tuberculosis Commission. The former concludes that the two diseases are identical, both in general features and in finer histological details. Seven of the twenty strains of human tuberculosis bacilli employed were found to be acutely infective for cattle, and in some instances the disease was of remarkable severity. Some of the less virulent strains gained greatly in virulence on reinoculation from one animal into another. The German commission tested thirty-nine cultures of human origin and found four that produced general tuberculosis in calves; but these were derived from children, and it was claimed that they must have been of bovine origin, the children having become infected through the milk of tuberculous cows. Thus, in attempting to explain the infectivity of human bacilli for the bovine species, it became necessary to admit the possibility of human infection from bovine sources.

From an experience with several thousand cases of tuberculosis within the past few years, Raw [2] concludes that man is subject to two kinds of tuberculosis: the pulmonary form, rare in young children and due to bacilli of human origin; and other forms, as tubercular joints, tubercular meningitis, and abdominal tuberculosis, rare in adults and due to bacilli of bovine origin. Of nearly 300 cases of tabes mesenterica seen by him in twelve years, not one of the subjects was a breast-fed child.

According to Heller,[3] Wagner found, in the course of 600 autopsies at Kiel, 76 cases of primary tuberculosis of the intestines and mesenteric glands, and Hof found, in 15,000, nearly 2,500 with primary tuberculosis of the digestive tract and no lesions in the lungs. He explains that, while in Berlin it is the rule that milk is boiled before use, in the country about Kiel it is commonly consumed without treatment.

IDENTITY OF MEAT POISONING AND PARATYPHOID.

In the course of a study of an outbreak of meat poisoning at Düsseldorf, Trautmann [4] isolated a bacillus, which he compared with cultures of the organisms which were proved to have been the exciting causes of a number of extensive outbreaks in other parts of Germany, and also with various strains of paratyphoid bacilli. His observations led him to conclude that while they all offer slight differences in morphology and cultural peculiarities, they show no fundamental difference and are actually varieties of a single organism. It seems probable that the differences in the character, severity and order of appearance of symptoms in meat poisoning, other than botulism, and in paratyphoid depend upon the slight racial differences in the bacteria and upon the degree of virulence and individual susceptibility. Not a few outbreaks of meat poisoning have been indistinguishable from paratyphoid and some of severe form have been mistaken for true typhoid. The typical meat poisoning is believed by Trautmann to be the hyperacute, and paratyphoid to be the subacute, manifestation of an etiologically similar disturbance due to different varieties of an organism for which he proposes the name *Bacillus paratyphosus*.

THREE CASES OF BOTULISM, WITH RECOVERY.

Three interesting cases of botulism in which the symptoms were the same in kind, but different in degree, are reported by Pelzl.[5] The persons affected were young vigorous men of about the same age. The first to present himself on February 13 had the usual symptoms — double vision, dryness of the mouth and fauces, dysphagia, difficult micturition and constipation. He could think of nothing suspicious that he had eaten, but two days later he recalled that on February 7, he and two companions had eaten a smoked home-made sausage weighing about a pound. He had felt a slight burning sensation in the stomach during the night, but felt perfectly well on the day following. On February 9, he had some pain in the stomach, but the appetite was

good and he ate heartily. Then he had a liquid stool and vomited. On the following day, he had double vision. Three days later, he presented himself for treatment with the symptoms above-mentioned. Swallowing became impossible two days later and he was fed by the stomach tube, which was introduced with no resistance, the whole passage being paralyzed. In a few days, he began to improve, but it was two months before he fully recovered. The other victims did not seek medical aid until nearly two weeks after eating of the sausage, although they had had some disturbances of the same nature. Their condition was practically the same and they made the same slow but complete recovery.

POISONING BY MUSSELS.

Two cases of poisoning by mussels taken from water known to be polluted are reported by Rolfe.[6] The mussels were washed and then cooked in several changes of water. Four hours after they were eaten, the victims, sailors, past middle life, were seized with giddiness and soon were unable to stand, or, indeed, to sit up in bed. One of them vomited several times. The symptoms included slight abdominal pain, mental excitement, and a condition resembling the early stages of alcoholism. The pulse was full and bounding; temperature normal. There was numbness of the extremities, especially of the hands, and sensation was much diminished. The elbow and knee reflexes were not exaggerated. The pupils were dilated, but reacted to light. The abdomen was distended and tympanitic and there was slight tenderness in the epigastrium. At the end of another hour, both began to feel a dryness in the throat and constriction in the neck, and the younger of the two suddenly had an attack of syncope and died. The survivor grew gradually worse, with increasing distention of the abdomen, slight delirium, syncopal attacks, and difficulty of breathing, which was much relieved by cold compresses applied to the neck. Doses of hot strong coffee, which were swallowed with difficulty, produced marked, but transient, effects; but small doses of aromatic spirits of ammonia, well diluted, made matters worse and caused choking and syncopal attacks. After repeated enemata of soap and water, which were productive of the desired results, the patient began to make rapid improvement. The tongue cleared up, restlessness disappeared, and he fell asleep; but on awakening he had dizziness and headache, which persisted two days. Recovery was complete after some days, but there was slight albuminuria, which may have existed before. It is interesting that the one who vomited several times died, while the elder, a man of seventy, who did not vomit and who had presumably an old lesion of the kidneys, recovered.

ACTION OF BORON PRESERVATIVES ON THE SYSTEM.

The results of his extensive investigation of the effects of boric acid and borax in foods on the human system were communicated by Dr. H. W. Wiley, on Nov. 17, 1904, in an address before the New York Academy of Medicine. They demonstrate that borated foods cause diminished elimination of nitrogen (interference with metabolism), increased excretion of phosphoric acid (disintegration of bony structures), and increased physiologic albuminuria. Of the total amount of the boron compounds ingested, 80% was found to be eliminated by the kidneys.

The experiments of the reviewer [7] show that, in cats, the continued ingestion of borax causes, in the kidneys, lesions which, while not conforming to any definite type, are analogous to those found in subacute and chronic nephritis in human beings. These changes were observed in the kidneys of every one of six cats fed on borated meat for nineteen weeks, while those of six other cats kept under similar conditions, but fed on non-borated meat for the same period, showed no lesions whatever.

MILK HYGIENE.

According to the experiments of Kolle,[8] raw milk has a distinct bactericidal effect on cholera organisms, but not on other pathogenic bacteria, and this is independent of acid formation. It is lessened by heating to 140° F. and destroyed by boiling. Against the dysentery organisms, raw milk possesses a slight inhibitive power, which is destroyed at 158° F. But a temperature of 140° F. was found to be high enough for the destruction in ten minutes of the bacteria of typhoid, paratyphoid, meat poisoning, dysentery and cholera.

In the decomposition of milk at ordinary temperatures, various forms of lactic acid are produced, the optically active form always being present and appearing before the optically inactive variety. According to Thiele,[9] the former appears at 98.6° F., but soon goes over into the latter. The chief excitant of fermentation is Kozai's *B. acidi paralaticic*, which appears to be able to split the optically inactive acid and to affect injuriously the lævo-rotatory modification. Löwenstein [10] asserts that the slowness with which rennet acts upon milk to which formalin has been added is due to changes produced in the casein and not to the destruction of the enzymes, for watery solutions of the latter are very resistant to formalin, although in the form of powder, they are killed by long exposure to formaldehyde gas. According to Kolle,[11] the addition of small amounts of formalin causes the inhibition of the lactic acid bacteria, while other forms multiply without producing any curdling. In milk treated according to Behring's plan with formalin, added pathogenic bacteria were found after three to five days.

Vaughn [12] has shown that even one part of formaldehyde in 50,000 of milk inhibits the growth of the lactic acid bacilli and prevents souring, but has little influence on the colon bacillus.

EPIDEMICS SPREAD BY MILK.

Scarlet fever. — Robertson [13] reports that a sudden outbreak of scarlet fever led him at the end of three days to conclude that it was being

spread by the milk of a certain retail shop, which place he found to be in a scrupulously clean condition. At the time of the visit, two children were noticed playing about, and the condition of one of them was such as to arouse suspicion. Both were sent away, and three days later were sent to hospital with scarlet fever. When visited, the mother had red swollen tonsils, but other persons who handled the milk showed nothing abnormal. After the children had been sent away, the whole shop and contents and the adjoining rooms were disinfected with formaldehyde, and all the vessels were steamed. Cases continued to be reported, and six days after the children were sent away, the selling of milk in the shop was stopped, but distribution continued from the cowshed. The mother's throat being worse, she was sent to hospital to be with her children, and the outbreak suddenly declined. More than forty cases had been notified. The children slept with the mother, whose sore throat antedated their illness by a week. She sought the comfort of the kitchen, and being advised not to go out, she let her shop girl go away for a few days and served the milk herself as called for.

Typhoid fever. — Stokes [14] describes an outbreak of typhoid fever among factory hands who were served at noon with a light luncheon, which included a glass of milk. The employees of the factory included 1,500 women and girls, and 400 men, whose luncheon included beer instead of milk and among whom no cases occurred. As many as 200 women were absent at one time from all causes. The milk supply came from a dairy where unsanitary conditions prevailed. Bacteriological examination showed 4,500,000 bacteria per centimeter, and colon bacilli were demonstrated in $\frac{1}{1000}$ cc. samples. The milk was cooled in close proximity to a box full of liquid fecal matter, much visited by flies which had access also to the milk room. The milk supply was shut off and the outbreak ceased at once.

Septic sore throat. — About 250 cases of septic sore throat were traced by Pierce [15] to the milk of a herd of 20 cows, 4 of which had garget, with pus and streptococci in their milk. The outbreak ceased when the milk was cut off. In many instances whole families were seized, and in one house there were 12 cases in 13 inmates. Before the cases developed among the patrons of the diary, the farmer, his wife, and his four children were severely sick. In most of the cases, there was considerable constitutional disturbance and marked involvement of the submaxillary and posterior cervical glands, which were enlarged for a long time. A number of the victims suffered pain and tenderness of the joints in addition to the throat symptoms. In five cases, severe erysipelas supervened, one of which terminated in a mastoid abscess and death.

TYPHOID FEVER SPREAD BY DIRECT INFECTION.

A sudden outbreak of typhoid fever in a public institution was investigated by Herbert [16] who records it as one of direct infection through salads and other foods prepared by a woman who had become infected by contact with the stools of the original case. Of the 98 inmates seized, 59 came down within three days.

Another, much larger and more important, outbreak due to direct infection is described by Noetel.[17] It occurred in seven small communities in East Prussia, near Russian Poland, with a total population of about 65,000, mostly Polish and very largely coal miners. Among these people there were 927 cases, 84 of which resulted fatally. The water supply, milk and other foods, and the method of sewage disposal were investigated and held blameless; and the spread of the disease was attributed to the filthy habits of an ignorant, though industrious, people, who dwelt in overcrowded houses, in which fecal contamination was not regarded with disfavor. Only by vigorous action on the part of the public health authorities was the epidemic held in check; all discharges were disinfected, there was a general cleaning up, and all ambulant cases were looked for and isolated. Noetel advocates in all cases of such epidemics among ignorant, uncleanly populations, the removal of all the sick to isolation hospitals, where their discharges can be properly disinfected.

VIABILITY OF THE TYPHOID ORGANISM IN WATER.

The results of an investigation conducted by Jordan, Russell and Zeit [18] to determine the length of life of typhoid bacilli in drinking water differ very materially from those obtained by some other experimenters, notably Konradi,[19] who kept infected tap water at room temperature and found the bacilli as late as the four hundred and ninety-ninth day. They placed the organisms in water, under conditions approaching as nearly as possible for successful experimentation those which exist naturally. Sacks of celloidin or parchment, two and a half inches in diameter and holding from 200 cc. to 300 cc., were employed as containers. These were suspended in the water of Lake Michigan, in that of the Illinois River at Averyville, in that of the Chicago River, and in that of the Sanitary Canal. By employing the sacks, the bacilli were kept from being disseminated in the water to whose influence they were exposed, and at the same time their excretory products, which might act upon themselves, could escape. At short intervals, tests were made of the contents of the sacks to determine the presence of living organisms. In tap water containing 150 or fewer bacteria per cubic centimeter and sown with 1,750,000 typhoid bacilli, the organisms could not be found after the sixth day, and in polluted water containing 2,500,000 organisms per cubic centimeter, not after the third. They conclude that, under conditions probably closely simulating natural conditions, the vast majority of typhoid bacilli introduced into the several waters studied perished within four days; that while it is theoretically possible that specially resistant bacilli may exist and withstand for a longer time the hostile influences evidently present in water, they must be few in number and constitute but a small proportion

of those introduced; but it is not intended to claim that the behavior of the bacilli under the conditions described is representative of all conditions obtaining in all natural bodies of water.

The experiments of Hewlett [20] yielded results which were more in agreement with those of the Chicago observers, yet disagreeing, than with those of Konradi. He introduced large numbers of the bacilli into sterilized tap water of the New River Company and into Thames water from near Waterloo Bridge, and found that in the former they lived up to three weeks after inoculation, but not after four weeks; and that, in the latter, they lived up to two weeks and rarely longer. Thus, they lived longer in the purer water; and this is in accord with the assertion made by many that, in competition with other species, they tend to die out.

In spite of all that has been written on the subject of competition with other forms of bacterial life, it would appear that, under certain conditions, the typhoid organism may resist what, theoretically, should be inimical influences. Thus it is stated by Springfeld, Graeve and Bruns [21] that in a part of the town of Haspe, 4% of the population were seized with typhoid fever. Part of the watershed had been dressed with manure which contained typhoid excreta, and the mud from the bottom of the reservoir yielded bacilli which gave microscopic, cultural and agglutinative proof that they were *B. typhosus*.

THE SCOURGE OF UNCINARIASIS.

The report of Drs. Ashford, King, and Igaravidez on the so-called anemia of Porto Rico [22] is a most valuable contribution to the literature of uncinariasis. From their painstaking investigation they conclude that the disease known as "anemia" in Porto Rico is a symptom of some definite pathologic entity, or a consequence of some aberration of physiologic processes, caused by improper diet, unhygienic surroundings, etc.; that it is due in the great majority of cases to uncinariasis; that the parasitic worm gains entrance to the subject, generally by penetration of the larva through the skin; that the disease is marked by profound anemia and degeneration of vital organs, leading to chronic invalidism, and often results in death; that about 90% of the rural population in all parts of the island are affected; that the affection is curable in the great majority of cases and is susceptible to restriction or elimination in proportion to the observance of elementary hygienic laws and the treatment and cure of those already afflicted; and that the few cases in which anemia is symptomatic of other disease or condition are the same as in other countries and are produced by the same causes.

Illustrative of the now well-known prevalence of the disease in the South may be cited the results of an examination by Warfield [23] of the 60 inmates of an orphanage near Savannah, 48 of whom were found to be infested with the parasites; and in connection with the assertion of the Porto Rican investigators that the channel of infection is the skin, it is interesting to note that 45 of these 48 had a history of ground-itch, and that Dr. C. A. Smith [24] has proved it experimentally by binding earth containing the larvæ to a man's wrist for an hour and finding the eggs in his stools in the middle of the seventh week thereafter. That ground-itch is the most important factor in the transmission of the disease, is the opinion also of Nicholson and Rankin [25] who observe that where there is no ground-itch there is little or no uncinariasis, and that where the one is common, the other is also. Nearly all of a large number of cases investigated by them gave a history of ground-itch.

In Westphalia, according to Bruns,[26] preventive measures and medical treatment reduced the number of cases in 86 mines, employing 70,000 men, from 13,621 to 3,663 within a period of nine months. The people are instructed by lectures, pamphlets and pictures, and for their use are provided, above ground, extensive model sanitary bathhouses and waterclosets, while under ground, in the mines, receptacles for stools are provided in great numbers. Attempts to disinfect the mines were abandoned as futile. The expense and practical impossibility of ridding a mine of the parasite make preventive measures of the utmost importance. In Great Britain, the Committee of the British Association [27] has advised that the main roads underground and the pit's mouth be provided with proper sanitary accommodations; that regulations be adopted and enforced to prevent pollution of the pit by human excreta; that workmen from infected places be subject to a brief period of quarantine; and that the disease be included in the list of those notifiable to the authorities.

FORMALDEHYDE DISINFECTION.

The influence of temperature in formaldehyde disinfection is, according to Bonhoff,[28] underestimated, and it would appear that, in cold weather, raising the temperature is of more importance than increasing the amount of the disinfectant. He believes that 2.5 gm. of the agent to the cubic meter of air is altogether too small, and that in ordinary cases this amount should be doubled, and, with unfavorable conditions, quadrupled.

A simple method of generating the gas without the use of apparatus or lamps is suggested by Evans and Russell,[29] based upon the fact that when formalin is brought in contact with powdered potassium permanganate a violent reaction occurs with the evolution of much heat. They reckoned experimentally that for each pint of formalin used, 6.5 oz. of the powdered crystals are needed. It is necessary only to place the latter in a suitable receptacle and pour the formalin directly upon it, the operator leaving the room as quickly as possible thereafter. The receptacle recommended is made of tin and consists of a cylindrical base, eight inches in height and ten inches in diameter, with a flaring top, which at the height of 15½ in. from the bottom of the vessel is 17½ in. in diameter. It was found that 81% of the formalin is vaporized

within five minutes of the beginning of the reaction, so great is the heat evolved. Salmon [30] asserts that Evans and Russell's proportions are wrong; that 6 oz. of formalin require 5 oz. of permanganate, and that by the method above described, but little more than a quarter of the available gas is liberated. Salmon would use 20 oz. of formalin and 16¾ oz. of permanganate for each thousand cubic feet of space to be disinfected.

INDUSTRIAL HYGIENE.

Lead workers.—According to Dr. Lewin,[31] women are more commonly victims of industrial lead-poisoning than men. Of the operatives in the type foundries of Vienna, 26.4% of the women and but 6.9% of the men are affected; and of the women engaged in making lead capsules, no less than 80% show some evidence of poisoning. The influence of lead on fecundity is very marked. As an instance, he cites the history of seven couples with a record of 32 pregnancies, 11 miscarriages, 16 deaths before the completion of the third year and 3 more shortly after reaching that age. Eighty-one other women with a record of 123 pregnancies had but 14 living children.

Rubber manufacture. — It is not generally known that the use of carbon disulphide in the manufacture of rubber goods leads sometimes to more than a temporary disturbance of the nervous system, which disturbance usually disappears with change in occupation. Koster [32] states that chronic poisoning is very common among the women employed in the rubber factories in and about Leipzig, and he gives the details of several cases.

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THE Memorial Institute for Infectious Diseases of Chicago has established, according to the *Medical Record*, a Serum Division as a branch of its scientific and experimental work. This division will undertake the preparation of various sera and will also prosecute investigation into some of the problems of immunity and serumtherapy. Prof. Edwin O. Jordan of the University of Chicago has been placed in charge of the Serum Division, and preparations for the new work are now well under way.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., Secretary.

MEETING of November 22, 1904. The President, DR. J. B. SWIFT, in the chair.

DR. C. H. HARE and, by invitation, DR. T. LEARY reported

A CASE OF PRIMARY CARCINOMA OF THE FALLOPIAN TUBE.[1]

DR. R. G. WADSWORTH, by invitation, read a paper entitled:

CONSERVATIVE OPERATIONS UPON THE TUBES AND OVARIES: AN ANALYSIS OF 90 CASES.[2]

DR. ALFRED WORCESTER: I had hoped that the reader would make some statement as to the supposed mental and nervous advantages of conservative operations. I do not know whether such data are obtainable in a report based on correspondence, but if they could be obtained they would be very valuable. As far as my own somewhat limited experience goes, I have never had reason to feel that patients who have had their ovaries entirely removed suffer under any disadvantages as compared with those who having had one ovary removed have the possibility of a second operation hanging over them. In my experience the knowledge that a woman can have no more trouble helps build her up after an operation much more than the knowledge that she has a bit of ovarian tissue left.

DR. G. H. WASHBURN: I am rather surprised at the low percentage of pregnancies following conservative operations that the reader has reported. I should have expected that it would have proved to be distinctly higher. It is my experience that the relief to nervous symptoms is much greater when portions of the ovary are preserved. As to recurrence, while I have not tabulated my cases, I am quite sure that it has been less than 10%. I think the tendency to preserve organs is one in the right direction; it is certainly much better than the wholesale removal that used to be in vogue. Perhaps the pendulum has swung too far the other way, but I am not convinced of it.

DR. EDWARD REYNOLDS: While I began as a skeptic on the subject of conservative surgery, I have lived to go far to the other side. In considering this subject we must first ask in a given case whether the indications for conservative work are present and secondly whether it is possible to do it. I think we should be guided by many factors such as the mental make-up of the woman, her age and her social condition. In women well on to forty, especially if they are single, it is surgical folly to take the chance of a secondary operation for the sake of saving a portion of an ovary, while with women at the other extreme, at the beginning of childbearing life, it is surely cruelty to remove the ovaries entirely unless it is absolutely necessary. I think the matter is one that should be thoroughly talked out beforehand with the patient.

As regards nervous conditions, the removal of the ovaries in women near the menopause sometimes, though rarely, causes disturbances. The younger the woman the greater is the chance of bad results. On the other hand, very little disturbance follows conservative operations as a rule. As regards the question of the possibility of doing conservative work, we must discriminate as to what kind of an ovary we are dealing with. If it is studded with a large number of little cysts it is a dangerous ovary to resect. If, on the other

[1] See page 606 of the JOURNAL.
[2] See page 602 of the JOURNAL.

hand, the ovary contains only a few even very well developed cysts we may sometimes resect them with very great success. I have not analyzed my cases but I have done quite a number of them and I have noticed that not one of the private cases has come to a secondary operation. This is because I have been able to follow them much more carefully than is possible with hospital cases and I feel that the question of secondary operation is largely dependent on proper care after the first one. It will be noticed that in most of the cases in which a secondary operation is threatened the patient is much worse at the menstrual period. It is my custom, in such cases, to insist that for several months great care be taken during the menstrual period. I am very apt to keep up local depletion with glycerine suppositories before and actually during the menstrual period, with rest in bed while flowing. There is much still to be learned about this question of conservatism but I feel that the tendency will be to save more and more.

Dr. Charles M. Green: I agree that our attitude should be towards conservatism. Much depends on the patient's age and previous obstetrical experience and also on what is her own attitude towards the question. In young women we should take chances. It is certainly a great comfort to a woman to know that she has not been deprived of the possibility of childbearing. Of course, in such cases one sometimes has to do a secondary operation. I have under my care at present two cases in which a secondary operation is needed. In one a two-inch cyst has developed in a resected ovary. But even with such cases in view we should not be too hasty about removing ovaries entirely during the childbearing period.

Dr. M. H. Richardson: The move towards conservatism is certainly a most healthy one. My difficulty, and it is one that I think most men will have, is to tell whether a given ovary as we see it at operation is really one that should be removed or not. There are often bilateral conditions in which an apparently healthy ovary should be sacrificed; for instance, a true ovarian tumor of one ovary with nothing but a tiny cyst of apparently innocuous nature in the other; yet we can be sure that if that second ovary is left further trouble will develop. I am strongly impressed by the fact that most women do not like to be unsexed, and I think their wishes should be respected when possible. I see many cases where both ovaries have been removed and a good percentage of them are wrecks who would give anything to have their ovaries back. We must not, however, carry the conservative principle too far.

I have no great belief in the value of plastic work on tubes. If a plastic operation is done on a diseased tube there is almost certain to be more trouble later.

Dr. G. Walker: As a general rule my practice is radical as regards tubes and conservative as regards ovaries. I have seen a number of cases of secondary operation following conservative operations on the tubes, and agree with the last speaker that trouble is almost sure to follow such operations.

Dr. J. G. Blake: Did the reader in getting at his percentage of subsequent pregnancies take into account the question of whether any precautions had been taken to prevent pregnancy?

Dr. Wadsworth: It did not seem quite advisable to go into that matter in an investigation conducted by correspondence.

Dr. J. B. Swift: My experience has not been such as to give me any great belief in success following resecting of the ovaries. I have done a number of secondary operations and show here a pair of ovaries I recently removed from a patient who had had them resected a year previously. They are now, as you see, the size of a large horse-chestnut shell.

Dr. E. H. Stevens: I should like to ask what is the practice of members of the Society as regards leaving ovaries when the tubes have been removed.

Dr. Richardson: Speaking for myself I would say that I always leave the ovaries if they are healthy chiefly on account of the effect on the general system that the ovaries are supposed to have.

Dr. Stevens: I have removed by secondary operation a number of such ovaries which later became a source of annoyance.

Dr. Swift: The leaving of an ovary in such cases is supposed to prevent the premature menopause.

Dr. Worcester: Statistics will always be vitiated by the fact that fragments of an ovary are very apt to be left unintentionally.

Dr. M. Storer: I am rather surprised at the skepticism that has been expressed to-night regarding conservative work upon the tubes. I have not tabulated my cases, but out of quite a number of tubal plastics I can recall four that have subsequently become pregnant. In two of these cases that had a child there was no later trouble from the tube. I know nothing of the third case except that she had a child. The fourth is now having a secondary operation in a New York hospital but she has sent me word that she regards that as a very cheap price to pay for her baby.

As regards conservative ovarian work we must be guided by the peculiarities of the given ovary, but I am so strongly convinced of the benefit of leaving at least a portion of an ovary that I always do so if I possibly can. I feel that hastening the menopause even in a woman who is pretty near it in years is to be deprecated.

Recent Literature.

The Nervous Affections of the Heart. Being the Morison Lectures delivered before the Royal College of Physicans of Edinburgh in 1902 and 1903. By George Alexander Gibson, M.D., D.Sc., F.R.C.P. Edin., F.R.S.E. Edinburgh and London: Young J. Pentland. 1904.

For convenience of description the subject is divided into two sections under which are considered, respectively, Sensory Disturbances and Motor Disturbances, the sensory disturbance *par excellence* being angina pectoris. The first section is devoted to this condition which is discussed under the separate heads of clinical, pathological and therapeutical. Strong, almost violent, exception is taken to further use of the term pseudo-angina, which "ought to be relegated to the limbo of archaic notions, as an entire anachronism in the twentieth century of our era." Instead of such classification, the division into organic types and inorganic varieties is preferred. Under pathology is given an intricate study of the nervous supply of the heart and its relation to the spinal segments, tracing, thereby, the association of pain and sensitiveness in superficial distributions. Under therapeutical considerations, as was to have been expected, nothing new is evolved; and again, the lectures devoted to the motor disturbances may be described rather as a lucid exposition of existing knowledge than as the demonstration of anything essentially fresh.

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PLAGUE AND DISTRIBUTION OF RATS.

THE investigation, which is now being devoted in various parts of the world to the general subject of plague, gives ground for hope that before many years this disease also will be placed in the category of those wholly preventable. No doubt the most important facts learned during the past decade are those in relation to rats as direct or indirect carriers of the infection. Bearing on this matter Lieut.-Col. Bruce Skinner publishes in the *British Medical Journal* for May 6 an interesting series of facts and observations relating to the geographical distribution of rats and their relation to plague. From this study it appears that certain localities have been long designated as "endemic areas" of plague. Among these are a certain district in Arabia on the eastern shore of the Red Sea, parts of Mesopotamia and Persia, certain provinces of India and China and East and Central Africa. Toward the end of the seventeenth century epidemics in Europe were devastating in their results, but from that time to the present the disease has gradually disappeared from that continent, the cessation occurring from west to east. For example, the last epidemic in England was in 1679, the last in France in 1722, and the last in Turkey in 1841. In Southern Russia the disease appeared as late as 1879. In 1896, the disease again showed a tendency to spread, and the northern part of Africa, parts of Europe, Mexico, California and Brazil were invaded.

In connection with these facts an investigation of the rat tribe becomes of importance, since its relationship to the disease has been definitely established, particularly in India and China. The English or long-tailed rat probably appeared in Europe in the thirteenth century and is world-wide in its distribution. The brown or Norway rat is of another species and is supposed to have come from Asia in 1726, later appearing both in England and France. In 1775, this rat appeared in North America and other countries of the Western Hemisphere. This Norway rat is larger and stronger than the long-tailed variety and has gradually driven the latter rat into a subordinate position throughout Europe. If the Norway rat did not appear in England until 1730, it is clear that it had no relation with the plague of the previous century, nor did it appear in other countries until after the last plague epidemic had subsided. This rat is known to live on shipboard and, therefore, to be transported to distant places, but there is no evidence to show that it has been a transmitter of the disease. It is, therefore, suggested that the Norway rat may be immune to plague, and that its natural antagonism to the long-tailed rat may have been at least one of the preventives of dissemination. In Europe the long-tailed rat has practically given place to the Norway variety, and it is thought that if the Norway rat were given an opportunity it would before long overcome the variety of rat found in Egypt.

As a general result of these interesting suggestions, Lieut.-Col. Skinner sees a possibility of exterminating plague through the introduction of an immune species of rat which is stronger than the existing varieties, known to propagate the disease. The matter evidently needs further investigation, and it is suggested that further experimental study be made of the behavior of the Norway rat in plague-infected areas. In this connection the question which the flea as a parasite of rats plays in the propagation of the disease, as brought out by certain recent investigations, should receive careful attention. It would, for example, be interesting to know whether the Norway rat harbors fleas, or fleas of the same variety as other species. The working out of the problem with the data at hand should not be difficult.

In a recent report of the Bureau of Government Laboratories at Manila, Dr. Maximilian Herzog discusses the question as to whether latent or dormant plague exists where the disease is endemic. His investigation was excited by a communication, made by Mr. H. A. Blake, governor of Hongkong, in which he asserted that there was danger of the spread of the disease by animals of the most varied kind, and also that the bacilli might exist in the circulating blood in spite of the absence of all clinical signs of the disease. This

he calls "latent plague," and regards as an important factor in the spread of the infection. Dr. Herzog has set himself the task of determining the correctness of this assumption of latent plague by cultural methods rather than by mere examination of the blood. As a result of this carefully conducted investigation on 245 native Filipinos and Chinese he concludes that this condition of so-called latent plague does not exist in Manila, and presumably does not exist in Hongkong. The claims made were not borne out by the methods of bacterial investigation used, and Herzog is inclined to the opinion that the assumption made is without adequate foundation. For example, in not one instance of 245 examinations of persons, many of whom had been much exposed to the disease, was the slightest evidence found of the existence of plague bacilli in the blood. The situation at Hongkong appears to be that the city is in so bad a sanitary condition that plague has never been completely eradicated, and cannot be under the existing conditions.

THE STUDY AND PREVENTION OF TUBERCULOSIS.

With the conclusion of the annual meeting of the National Association for the Study and Prevention of Tuberculosis at Washington it would seem as if all that could be advantageously said on these subjects at the present time had been said. Of course there may be much reiteration, but the ground has been pretty well cleared, and the various points of view thoroughly presented by laymen and physicians.

In the Sociological Section papers were presented by Mr. Homer Folks of New York on Health as an Investment; by Mr Baldwin of Washington on the Progress of the Sanatorium Movement; by Dr. Bracken of Minneapolis on Infection of Transportation; and Mr. Devine of New York laid down a working program for associations for the prevention of tuberculosis, national, state and local. These gentlemen all speak with a measure of authority from the positions which they occupy and from past or present experience and investigation. According to Mr. Folks, Secretary of the New York State Charities Aid Association and ex-Commissioner of Public Charities of New York City, with the text of Health as an Investment, the question which inevitably presents itself to a layman is this: If tuberculosis is a preventable disease, why is it not prevented? After due reflection he is forced to the conclusion that "all the reasons for the continued prevalence of this preventable disease may be resolved into one, namely, that we do not realize the value of public health as an investment; that we are not yet ready to devote sufficient means to the saving of human life, even when the opportunity is placed squarely before us. Which of the ten measures set forth by Dr. Biggs in the paper already referred to is fully carried into effect, even in the city of New York? A few of them, requiring comparatively little expenditure, are probably as effective as the present willingness of the medical profession to co-operate will permit. But in all the very important measures, which involve the expenditure of large sums of money, it is only too evident that our present provision is very ineffective and incomplete, and in some very important directions almost grotesquely inadequate. Whenever you push the inquiry as to the occasion of this inadequacy, you almost immediately come back to the underlying cause, the lack of adequate means. If money is the sinews of war, it certainly is the sinews of this warfare in which we are engaged. We have the greatest possible respect for the efficiency, the expertness and the devotion to the public well-being of our health authorities, but they and we must admit that the sums of money placed at their disposal, or at the disposal of any of their co-operating agencies, are woefully inadequate for the performance of the tasks which we all know are essential in checking this disease. . . ."

The practical question then is, shall we as a community, knowing how to restrict "effectively this terrible scourge, be satisfied with the piecemeal method, advancing slowly, a step here and a step there, wheedling a few additional thousands of dollars year by year from our city authorities and from the pockets of the well-to-do; or shall we recognize the extraordinary nature of the situation created by our recent discoveries, make the largest possible use of our precious, recently acquired knowledge, and by large expenditures accomplish the greatest result in the shortest time?"

Mr. Folks is of the opinion that from every point of view no American city at the present time can find a more appropriate subject for permanent investment, yielding larger returns, than in carrying into effect the measures set forth by those who addressed the Association.

Mr. Edward T. Devine, General Secretary of the New York Charity Organization Society, and Professor of Social Economy at Columbia University, in offering a working program for associa-

tions considers that, "the problem for laymen, for legislators and public officials, for the public press and other instruments for the molding of public opinion, in relation to the scourge of tuberculosis, as in relation to any other great epidemic, may be defined to be the centering of complete responsibility upon the medical profession. This, however, cannot be done merely by logical demonstration as to what their duty is, by hypercritical fault-finding as to the manner in which it is being discharged, or by eloquent exhortation to physicians to attend to the matter. Responsibility can be devolved upon the medical profession only by meeting the conditions which authoritative medical opinion prescribes as essential.

"For example, when it has been shown that hospitals and sanatoria are necessary, it is no more the duty of physicians than of others to secure their establishment. Physicians must do their part, according to their abilities, like other citizens; but the only way in which the complete responsibility for procuring results can be placed squarely upon the shoulders of the medical profession as such, is for the state, the municipality, or private philanthropy to provide the hospitals and the sanatoria which authoritative medical opinion has declared to be indispensable. Again, when appropriations for sanitary inspection, for the enforcement of anti-spitting ordinances, or for special investigations are demanded, upon reasonable and conservative grounds, it is only by making the appropriations and paying the taxes which they necessitate that the community transfers to the medical profession responsibility for results. It is clearly the duty of representative medical men not to demand the impossible, but to subject to rigid professional criticism the actions of officials or experts who are using such appropriations, and to see that expenditures are made in such a manner as to insure maximum results."

Mr. Devine sums up the specific tasks as follows:

> The movement for the prevention of tuberculosis is one which already enlists the enthusiasm of a larger number than all who marched in the crusades of old, which already commands greater capital than would provide a modern navy for a first-class power, which has already won a hearing at the awakened conscience of mankind, and which is, nevertheless, as yet, in its feeble beginnings, with comparatively few lives lengthened, comparatively little pain mitigated, comparatively few families saved from unnecessary dependence.
>
> The elementary undertaking is the creation of a sound public opinion, midway between indifference and phthisiophobia, an enlightened public opinion in which every one is frightened just enough to act sensibly, and not enough to act foolishly; just enough to insure necessary public appropriations and private donations, but not enough to make it difficult for a cured and educated consumptive to find a job; just enough to cause the railways to disinfect the hangings of a sleeping car and the cushions of a day coach, but not enough to cause them to refuse to an indigent consumptive girl, on her way to a sanatorium, the charitable reduction which is given to other indigent persons; just enough to cause the city to build a sanatorium, but not enough to induce the legislature to permit local prejudice to close county after county to the urgently needed sanatorium, except on a bribe to the county commissioners and the township trustees.

Mr. Baldwin of Washington gave a good résumé of the progress of the sanatorium movement in America, in the course of which he affirms that the task of caring for consumptives "is one which belongs to society as a whole, not only on grounds of humanity, but of self-preservation and social economy. In approaching it, it seems clear that each state ought to do its part by providing at least one sanatorium for incipient cases. The political units by which the poor are now cared for are too small to build and properly maintain establishments for the purpose in the present state of knowledge on the subject, and it would be impossible to find a proper location for such a sanatorium in each, though it may be found in the larger choice which every state affords. The public welfare demands that the state shall make provision for tuberculous patients just as it does for the insane, the epileptic or others who require a care for which counties and town cannot properly arrange. The objection made by Governor Pennypacker to the Pennsylvania bill that it opened the door for the care by the state of smallpox, bubonic plague and other dangerous diseases is the only one not well taken; for all other contagious diseases reach a crisis promptly while consumption demands long-continued care and support if the danger to the community is to be avoided. . . .

"It is, however, quite proper that the state, having provided a sanatorium, should not be asked to bear the expense or all the expenses of supporting the people in it. As in Massachusetts and New York the patients who are able should pay at least part of the cost of maintenance, and if they are not able the local authorities in the place from which they come should pay it for them."

Dr. H. M. Bracken, Secretary of the Minnesota Board of Health, presented the subject of infection in transportation in a long paper. This

subject had previously been traversed by the Secretary of the Public Health Association in 1903. Dr. Bracken thinks that there should be no danger of possible tubercular infection while traveling in public conveyances. After a consideration of the facts he admits that there is a real, but unnecessary danger of infection with tuberculosis during transportation in many of the cars operated by city railway companies, by railroad companies, and by the Pullman Car Company. The greatest danger is in the sleeping car, and the methods of the Pullman Company in actual practice leave much to be desired.

CAMBRIDGE SCHOOL OF NURSING.

That nursing is hereafter to be regarded as a profession is shown by many recent events. In popular parlance the term "trained nurse" is apparently giving way to the designation "professional nurse," and the general trend of opinion appears to be toward exalting the work of nursing to the rank of a so-called liberal profession. We have on various occasions commented on this tendency and expressed a degree of skepticism regarding this expansion of the work of nursing. It matters, however, very little whether nurses bind themselves together in a profession or not, provided they best fulfil the function for which they exist. In the minds of those promoting the further education of nurses it is clear that greater efficiency is to be attained by the new methods than by the old. We have no desire to express an opinion on this point, but we are convinced that the success of the new movement cannot be assured until many years of experience have passed.

We are in receipt of a circular relating to a movement now on foot to establish what is to be called the Cambridge School of Nursing, the purpose of which is to provide both for the education and the training of young women for nursing. It is noticeable that the educational side of the matter is given the place of prominence. The course is to be divided into four years, and the students during the first year of instruction are to be housed in the home of the school much, we take it, as they would be at a boarding school or college. Later, the students will be assigned to service in the wards of hospitals, to district visiting, and to home nursing, which will be carried further in the last year of the course. For the instruction given very considerable fees will be charged, namely, $150 for the first year, and for the three subsequent years $75 each. The details of the work do not particularly concern us, but we are glad to call attention to the fact as marking one more step in what must inevitably bring about a distinct change in the relationship between patient, nurse and physician. In the words of the president of the school, "It is the plan of the trustees to make a course so broad that it will be a distinctly educating force in the life of any woman who takes it, even though circumstances after graduation should prevent her from following nursing as an occupation."

MEDICAL NOTES.

Meningitis in Germany. — The *North German Gazette* reports 1,935 cases of cerebrospinal meningitis in Prussia with 994 deaths, and 1,814 cases in Silesia with 932 deaths since the end of April.

Health Conditions at the Isthmus of Panama. — Mr. Barrett, formerly American Minister to Panama, on his recent arrival in New York, is reported to have stated that sanitation and the preservation of health is the one great problem which confronts the American authorities at the Canal Zone. It is unquestionably the fundamental problem. This statement cannot be, and is not likely to be, repeated too often. The death of the supervising architect from yellow fever was followed by that of the head of the auditor's department from the same disease, and these deaths were followed by a good deal of demoralization among employees. That Colonel Gorgas should be the acting governor at the Canal Zone is a reassuring factor, and he now reports no yellow fever on the Isthmus, including Panama, Colon and the Zone.

General Davis, the returning governor, is confident that by August 1, yellow fever will be permanently eradicated from Panama and this by the completion of an adequate water works system, and the consequent killing off of house-bred mosquitoes. In regard to malaria, General Davis takes a much less optimistic view, and admits that there probably will always be malaria in Panama.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 24, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 28, scarlatina 24, typhoid fever 10, measles 22, tuberculosis 37, smallpox 0.

The death-rate of the reported deaths for the week ending May 24, 1905, was 16.56.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 20, 1905, was 198, against 203 the corresponding week of last year, showing a decrease of 5 deaths, and making the death-rate for the week 16.81. Of this number 95 were males and 103 were females; 190 were white and 8 colored; 126 were born in the United States, 68 in foreign countries, and 4 unknown; 56 were of American parentage, 119 of foreign parentage, and 23 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 12 cases and no deaths; scarlatina, 34 cases and 1 death; typhoid fever, 10 cases and 1 death; measles, 27 cases and no deaths; tuberculosis, 47 cases and 22 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 23, whooping cough, 1, heart disease 30, bronchitis 7, and marasmus 0. There were 10 deaths from violent causes. The number of children who died under one year was 25; the number under five years, 34. The number of persons who died over sixty years of age was 47. The deaths in public institutions were 62.

The number of cases reported for the week from cerebrospinal meningitis was 7.

No New Edition of Medical Register. — Dr. Francis H. Brown asks us to say once more that he has no present intention of putting forth another edition of the *Medical Register*. All statements to the contrary, the collection of information and the demand for the prepayment of money are without any authority from him. When prepared to enter the field again he will announce the fact over his own signature in this Journal.

East Boston Relief Hospital. — The project for the establishment of a relief hospital for East Boston, when presented to Mayor Collins, met with his disapproval. The Boston Board of Aldermen by a vote of eleven to two have, however, voted to pass the act authorizing the establishment of such an institution over the Mayor's veto. The act which originally passed both branches of the City Council called for an appropriation of one hundred thousand dollars.

Ethical Forces in the Practice of Medicine. — A series of addresses is being given at Cambridge under the auspices of the Ethical Society of Harvard College. Dr. Richard C. Cabot delivered one, which is published in the last bulletin of the Harvard Medical Alumni Association, on "Ethical Forces in the Practice of Medicine." In the same course Mr. L. D. Brandeis has addressed the Society on "Opportunity in the Law," and Col. T. W. Higginson on "Literature as a Pursuit."

New England Association for the Education of Nurses. — The first regular meeting of the New England Association for the Education of Nurses, of which Dr. Richard C. Cabot is president, is to be held at the Medical Library, Boston, Thursday, May 25, at four o'clock. Members of the medical profession, graduate nurses, superintendents, hospital trustees and managers and any others interested in the aims and objects of the Association are invited to be present at this meeting.

The Portland Meeting of the American Medical Association. — The members of the A. M. A. Outing Club and of the New England delegation to the Portland, Ore., meeting, have planned to attend, traveling in special cars, via the C., M. & St. Paul Railway and Northern Pacific from Chicago, visiting Yellowstone Park en route, and returning via the Canadian Pacific to Montreal, making short stops at important points in the Canadian Rockies, and visiting the Canadian National Park.

The railroad fare will be $78.50. Other necessary expenses, including sleeping car fare and trip through Yellowstone Park, should not exceed $150. The party contemplates leaving about June 27, for a trip of about four weeks. Drs. H. O. Marcy, Boston, T. D. Crothers, Hartford, and E. R. Campbell, Bellows Falls, Vt., are the organizing committee.

NEW YORK.

Water for the Borough of Richmond. — The Board of Estimate and Apportionment has approved a ten-year contract with the Hudson County Water Company to supply the Borough of Richmond with water from the Passaic River, in New Jersey.

Management of State Hospitals. — The Governor has signed the bill passed by the recent legislature restoring the detail of management of the state hospitals for the insane to local boards, to be appointed by the governor and confirmed by the senate, consisting of seven managers, two at least of whom are to be women, each serving for seven years, with one term expiring annually. It will be remembered that much regret was felt at the abolition, on the recommendation of Governor Odell, of these local boards, which under the former *régime* were composed of men and women prominent in their communities and of wide

experience in charitable work, serving without remuneration. By the same bill the salary of the medical inspector of the State Commission in Lunacy is increased from $3,500 to $5,000. The Governor has also signed a bill which gives the Commission in Lunacy power of inspection over private asylums for the insane.

WATER SUPPLY COMMISSION. — Mayor McClellan has approved the bill recently passed by the legislature providing for a water supply commission, although some unsatisfactory alterations were made in the act as originally introduced, and has requested the Chamber of Commerce, the Board of Fire Underwriters, and the Manufacturers' Association each to recommend three candidates, from whom he will select the members of the Commission.

THE ONLY WOMAN IN THE OCEAN YACHT RACE. — Miss Candace Stimson, daughter of Dr. Lewis A. Stimson, the well-known New York surgeon, who is the owner of the yacht *Fleur de Lys*, is the only woman on board a contestant in the race across the ocean for the Kaiser's cup which commenced on May 17.

Obituary.

GEORG MEISSNER, M.D.

THE death of Dr. Georg Meissner has recently been announced. He was born Nov. 29, 1829, in Hanover, and as a pupil of Johannes Müller took particular interest in the broad general problems of physiology. He later studied under Wagner at Göttingen, also at Munich, finally taking his degree, in 1852, at Göttingen. He was successively professor of anatomy and physiology in Basle, of physiology and zoology in Freiburg in Breisgau, and, in 1860, he became professor of physiology at Göttingen where he was associated with Wagner. In 1856, he became one of the editors with Henle of the *Bericht über die Anatomie und Physiologie*. The discoveries for which Meissner is chiefly known were made in the early part of his scientific career. Among the best known is the so-called Meissner plexus lying in the submucous coat of the intestinal tract. He is said to have burned many papers before his death and for the thirty years preceding he had published comparatively little. He was a good teacher, a successful experimenter, and outside of his strictly professional work he took much pleasure in music. Meissner was succeeded a few years ago in the chair of physiology by Max Verworn, and has in general led a quiet and secluded life.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 13, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Scarlet Fever	Cerebro-spinal Meningitis.
New York	3,906,844	1,429	445	28.98	16.89	2.80	.89	6.11
Chicago	1,998,750	450	168	24.66	13.77	.88	.44	.22
Philadelphia	1,467,963	455	106	26.59	10.55	2.41	.43	.43
St. Louis	653,066	—	—	—	—	—	—	—
Baltimore	543,329	185	47	20.00	14.05	—	—	.54
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	382,468	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	295,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	65	16	23.07	10.76	3.17	—	3.17
Boston	617,960	230	57	22.17	17.39	.87	1.73	1.30
Worcester	136,993	38	9	11.10	16.67	—	—	—
Fall River	119,349	44	18	20.45	20.58	—	—	4.54
Lowell	104,402	44	12	20.44	18.17	2.27	—	9.08
Cambridge	100,998	37	15	24.32	24.32	10.81	—	2.70
Lynn	78,875	33	5	12.12	15.15	—	—	6.06
Lawrence	72,848	35	13	22.85	17.14	2.86	—	11.42
Springfield	72,020	21	5	9.52	14.28	4.76	—	—
Somerville	70,412	17	4	5.88	11.76	—	—	5.88
New Bedford	68,863	15	5	33.33	26.66	—	—	6.67
Holyoke	50,588	18	7	16.67	16.67	16.67	—	—
Brockton	46,601	10	3	40.00	—	—	—	—
Newton	39,510	8	1	25.00	—	—	—	—
Haverhill	39,041	13	3	7.70	15.40	—	—	—
Malden	37,995	10	2	10.00	10.00	—	—	—
Salem	37,188	9	—	—	11.11	—	—	—
Chelsea	36,499	18	1	5.55	5.55	—	—	—
Fitchburg	36,335	9	3	11.11	22.22	—	—	—
Taunton	34,577	15	6	13.33	33.33	13.33	—	—
Everett	30,309	8	2	37.50	—	—	—	—
North Adams	22,201	6	2	16.67	—	—	—	—
Quincy	26,798	4	—	—	—	—	—	—
Gloucester	26,121	4	2	25.00	—	—	25.00	—
Waltham	25,787	7	2	14.30	28.60	—	—	—
Brookline	25,578	7	1	—	—	—	—	—
Pittsfield	24,570	5	—	20.00	—	—	—	—
Medford	21,926	4	1	—	25.00	—	—	—
Chicopee	21,692	8	3	12.50	37.50	—	—	12.50
Northampton	20,314	4	1	—	—	—	—	—
Beverly	15,887	2	—	—	50.00	—	—	—
Leominster	15,711	1	—	—	100.00	—	—	—
Clinton	15,004	1	0	—	—	—	—	—
Adams	14,745	4	2	100.00	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,509	4	2	—	—	—	—	—
Newburyport	14,478	6	1	16.67	33.33	—	—	—
Woburn	14,315	4	—	50.00	—	—	—	—
Melrose	13,819	4	0	—	25.00	—	—	—
Westfield	13,809	5	1	40.00	20.00	—	—	20.00
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,669	7	1	14.30	—	—	—	14.30
Revere	13,629	5	—	20.00	—	—	—	—
Framingham	13,574	—	—	—	—	—	—	—
Peabody	13,466	—	—	—	—	—	—	—
Gardner	13,334	—	—	—	—	—	—	—
Southbridge	11,716	4	1	—	25.00	—	—	—
Watertown	11,575	3	2	66.67	—	—	—	33.33
Weymouth	11,359	4	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,327; under five years of age, 914; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 839; acute lung diseases 510, consumption 429, scarlet fever 22, whooping cough 26, cerebrospinal meningitis 116, smallpox 2, erysipelas 15, puerperal fever 15, measles 29, typhoid fever 35, diarrheal diseases 85, diphtheria and croup 65.

From whooping cough, New York 8, Chicago 14, Philadelphia 2, Baltimore 1, Cambridge 1. From scarlet fever, New York 13, Chicago 2, Philadelphia 2, Boston 4, Gloucester 1. From cerebrospinal meningitis, New York 88, Chicago 1, Philadelphia 2, Baltimore 1, Providence 2, Boston 3, Lowell 4, Lawrence 4, Fall River 2, Lynn 2, Cambridge, New Bedford, Somerville, Chicopee, Marlborough, Westfield and Watertown 1 each. From erysipelas, New York 12, Philadelphia 1, Boston 2 From smallpox, New York 1, Chicago 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending May 6, 1905, the death-rate was 15.4. Deaths reported 4,621; acute diseases of the respiratory organs (London) 122, whooping cough 132, diphtheria 47, measles 186, smallpox 4, scarlet fever 29.

The death-rate ranged from 6.0 in Burton-on-Trent to 26.8 in Oldham; London 14.05, West Ham 14.7, Brighton 13.5, South-

ampton 14.1, Plymouth 15.3, Bristol 14.5, Birmingham 16.7, Leicester 12.8, Nottingham 15.7, Birkenhead 13.9, Liverpool 18.9, Wigan 15.7, Bolton 14.9, Manchester 17.4, Salford 15.3, Halifax 11.5, Bradford 20.7, Leeds 16.9, Hull 13.1, Sheffield 18.2, Newcastle-on-Tyne 12.2, Cardiff 15.6, Rhondda 21.3, Merthyr Tydfil 24.0, Hornsey 6.2, Middlesbrough 24.9.

METEOROLOGICAL RECORD.

For the week ending May 13, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 7	29.82	70	83	56	85	53	69	S	W	10	16	O.	C.	.08
M.. 8	29.98	58	68	49	64	62	63	N	W	8	14	C.	C.	0
T.. 9	29.82	58	66	49	90	85	88	S	W	10	15	O.	C.	.08
W.. 10	30.07	58	68	47	82	48	65	N	W	S	E	20	6	C.	C.	0
T.. 11	30.07	65	77	53	46	39	43	W		S	W	8	15	F.	C.	0
F.. 12	29.96	57	64	50	82	87	84	W		N	E	6	7	R.	F.	.01
S.. 13	30.17	52	56	47	86	73	80	E		S	E	13	10	O.	C.	0
Av.	29.98		69	50			70									.17

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Av. Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 20, 1905.

D. N. BARTOLETTE, medical director. Commissioned medical director with rank of captain, from April 5, 1905.

H. C. BEYER, medical inspector. Commissioned medical inspector with rank of commander, from April 5, 1905.

C. M. DEVALIN, surgeon. Commissioned surgeon with rank of lieutenant commander, from Jan. 31, 1905.

N. S. QUEST, surgeon. Commissioned surgeon with rank of lieutenant-commander, from March 3, 1905.

R. A. WARNER, P. R. STALNAKER, assistant surgeons. Commissioned assistant surgeons with rank of lieutenant (junior grade), from May 3, 1905.

E. A. VICKERY, assistant surgeon. Detached from the "Southery" and ordered to the "Franklin."

W. S. HOEN, assistant surgeon. Detached from the "Oregon" and ordered home.

H. D. WILSON, surgeon. Commissioned surgeon with rank of lieutenant-commander, from March 31, 1905.

H. A. DUNN, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant from June 7, 1904.

H. M. POLFREE, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant, from June 14, 1904.

U. R. WEBB, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant, from Oct. 11, 1904.

SOCIETY NOTICES.

AMERICAN NEUROLOGICAL ASSOCIATION.—The thirty-first annual meeting will be held at the College of Physicians, 13th and Locust Streets, Philadelphia, on June 1, 2, 3. Sessions from 10 to 1 and from 2.30 to 5.

GRAEME M. HAMMOND, M.D., *Secretary.*

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.—The eleventh annual meeting of the American Laryngological, Rhinological and Otological Society takes place in Boston, Mass., June 5, 6, 7, 1905. The sessions will be held in the Boston Medical Library, 8, The Fenway. The profession is cordially invited to attend.

W. C. PHILLIPS, M.D., NEW YORK, *Secretary.*
F. C. COBB, M.D., BOSTON, *President.*

RECENT DEATHS.

JACOB H. ASCH, M.D., a prominent German physician of New York, died on May 19, at the age of sixty-five years. He was graduated from the University of Berlin in 1864, and came to this country soon afterward.

ROLLIN HORACE PHELPS, M.D., M.M.S.S., died in Pepperell, Jan. 28, 1905, aged seventy-one years.

ALEXANDER W. ROGERS, M.D., the oldest physician of Paterson, N. J., and said to be the oldest graduate of the College of Physicians and Surgeons, New York, died on May 14. He was born in Armagh, Ireland, in 1814, and received the degree of M.D. from the College of Physicians and Surgeons in 1836. He founded the Passaic County Medical Society and was for many years chief physician of the Paterson General Hospital. Dr. Rogers was also prominent in religious work, and personally supported a missionary in India.

BOOKS AND PAMPHLETS RECEIVED.

And We Shall Be Changed. By Groesbeck Walsh, M.D. Reprint.

Recurrent Effusion into the Knee-Joint after Injury, with Especial Reference to Internal Derangement, commonly called Slipped Cartilage. An Analysis of 750 Cases. A Clinical Lecture delivered at St. George's Hospital. By Sir William Bennett, K.C.V.O., F.R.C.S. Illustrated. Reprinted, after Revision, from *The Lancet.* London, New York and Bombay: Longmans, Green & Co. 1905.

The Physician's Unpaid Debt to Youth. By George Parker Holden, M.D. Reprint.

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Original Articles.

THE EXPERIENCE OF NINE YEARS IN THE TREATMENT OF DIPHTHERIA WITH ANTITOXIN.*

BY JOHN H. MCCOLLOM, M.D., BOSTON,

Physician for Infectious Diseases, Boston City Hospital; Resident Physician, South Department (Infectious Service); Assistant Professor of Contagious Diseases, Medical Department, Harvard University.

In the study of any disease it is always well to take a glance at the earlier history of the malady in order to learn when it was first recognized, what were the theories regarding its causation, and the methods adopted for its treatment. The term "diphtheria" is of comparatively modern origin and was first used by Bretonneau in 1821.

In the year A.D. 111 Aretæus, a Greek Physician of Cappadocia, wrote regarding a disease of the air passages, which he termed the Egyptian ulcer. He described the train of symptoms which we now recognize as diphtheria.

Hippocrates and Galen seem to have recognized this disease, particularly Galen, because he is said to have performed laryngotomy. From time to time epidemics of this disease have been the subject of medical essays, and early medical literature is full of theories regarding diphtheria and the proper treatment of it. It would take too much time even to allude to the earlier physicians who have recognized this condition.

At different times in the early history of Boston there were epidemics of this disease, particularly in 1735 and 1736. At this time Dr. Douglass of Boston wrote a pamphlet on "Angina Ulcusculosa," which must have been diphtheria. The common name of the disease was "Throat illness or a plague in the throat." The epidemic was so general and caused so much alarm that the selectmen had a conference with the leading practitioners of that time regarding measures to prevent its spread. The opinion of the physicians, as stated in a paper presented to the selectmen, was as follows: "That the present prevailing Distemper appears to us to proceed from some Affection of the Air, and not from any personal infection received from the Sick or Goods in their neighborhood."[1] It is evident that these physicians knew very little about the etiology of diphtheria.

In 1765 Francis Home, M.D., his Majesty's physician, and F.R.S.P. in Edinburgh, published a pamphlet entitled "An Inquiry into the Nature, Cause and Cure of Croup." The word "croup" at that time was the term given to diphtheria, the Scotch word "croup" meaning to croak or to speak with a harsh voice. Dr. Home gives an accurate description of twelve cases which, although he calls them croup, we should at this time give them the name of diphtheria. The account Dr. Home gives of the autopsies is extremely interesting. For instance, he says in his account of one of the cases: "When the trachea was opened by Mr. Wood, the whole internal surface was covered with a membrane for three inches downwards from the glottis. This membrane was complete all around, did not adhere to the trachea, and came off in the shape of a hollow tube. The natural coats of the trachea seemed entire and not ulcered. The substance of the lungs was quite sound; but the vesicles of the left lobe were filled with yellow thick pus which sunk in water. The new-formed membrane had some degree of tenacity, and when steeped in milk-warm water for two days did not dissolve, but preserved some degree of cohesion. No fibers could be observed in it." In this pamphlet there are many accounts of similar autopsies.

In 1771 Dr. Samuel Bard of New York wrote an elaborate article on the "Cause, Nature and Treatment of Suffocative Angina." His description of the disease which we know as diphtheria is extremely vivid, but his knowledge of the etiology is somewhat vague.

In 1821 Bretonneau published his exhaustive paper on this disease. The work of Bretonneau apparently was not appreciated by the profession, and in many instances there was marked opposition to the theories he advanced and to the deductions that he made therefrom. In the light of our present knowledge, however, Bretonneau's work was a distinct advancement. Although his opinion regarding the etiology of the disease is not in accord with our present ideas, yet the careful manner in which he described the clinical symptoms makes his investigations of the greatest importance.

In 1847 there was an outbreak of sore throat in England which was traced to Boulogne, and was known as the Boulogne sore throat. There is no doubt that this disease was diphtheria. Since that time diphtheria has been more carefully studied and more generally recognized.

The pamphlet of John Ware, M.D., entitled "Contributions to the History, Diagnosis and Treatment of Croup,"[2] published in 1850, although written in 1842, is a valuable contribution to medical literature as far as the clinical appearances of what he termed membranous croup and what we should call diphtheria are concerned. Dr. Ware makes a careful distinction between membranous croup and spasmodic croup.

It was not until 1859 that the term "diphtheria" was used in Boston, as far as we are able to learn from the death certificates. During this year nineteen deaths from this disease were reported in Boston. During the following year only one death from this disease is reported, although there must have been a great many cases that were not recognized. In 1861 the term "diphtheria" was very gradually recognized by the profession, as is proved by a study of mortuary statistics. In 1863 and 1864 in Boston with a population of 186,526 there were 353 and 287 deaths respectively. In 1904 in Boston, with a population of 614,522, there were 206 deaths

*Read at a meeting of the Boston Medical Library, in conjunction with the Suffolk District Branch of The Massachusetts Medical Society, March 8, 1905.

[1] Memorial History of Boston, Vol. iv, p. 538.

[2] Contributions to the History, Diagnosis and Treatment of Croup. *Boston Medical and Surgical Journal*, 1850: Dr. John Ware.

from diphtheria. In other words, the ratio of mortality from this disease per 10,000 of the population was in 1863, 19, and in 1864, 15.38, as compared with 3.35 in 1904.

Very many different theories have been advanced regarding the etiology of the disease. Soil, moisture, sewage gas, imperfect drainage, poor hygienic surroundings, over-crowding, have been supposed to be important factors in causing the disease. It is very doubtful, nay, it is absolutely certain, that, although these conditions may have a predisposing influence, they never of themselves can cause the disease.

It was not until 1883 when Klebs demonstrated in the false membrane of diphtheria the existence of a small bacillus, that the etiology of diphtheria was placed on a scientific basis. Lœffler in 1884 isolated and cultivated this organism; hence the term "Klebs-Lœffler bacillus." Darier in 1885 independently arrived at similar results. Roux and Yersin found this bacillus in all cases of diphtheria.[3]

The importance of a bacteriological examination in all cases of suspicious sore throat cannot be over-estimated. No matter how much experience a man may have in the treatment of diphtheria, instances frequently occur where it is impossible for a correct diagnosis to be made without the aid of cultures. Much has been said regarding the inaccuracy of cultural diagnosis, and while possibly mistakes may be made in the laboratory the chances of error are very much less in the cultural diagnosis than in the clinical diagnosis, particularly in the extremely mild attacks of diphtheria. One great source of error is the carelessness in taking the culture. The swab is simply put into the mouth and does not come in contact with the membrane; and again, if there is a patch of membrane the swab is placed in the center of the membrane instead of at its edge near its junction with the mucous membrane. Sometimes the swab is not rubbed sufficiently on the surface of the culture medium, and consequently there is no growth. These may seem trivial matters, but as accuracy of diagnosis is all important, it is well before criticising the work of the laboratory to be sure that the critic himself is not at fault. I have repeatedly taken cultures from a perfectly typical case of diphtheria in a careless way in order to demonstrate that, if proper care is not used in taking the culture, a negative result may be obtained.

In nasal diphtheria of a mild type, a form of the disease which is responsible for many unexplained outbreaks, a culture is the only means we have of arriving at a correct diagnosis. The assistance that I have received from cultural diagnosis during the past nine years has been of immense value. During the past year two outbreaks of diphtheria in institutions have been stopped by means of the prompt recognition of diphtheria by cultural diagnosis, when if one had been obliged to depend on clinical diagnosis alone, diphtheria could not have been recognized and the outbreak would not have been stopped. In laryngeal diphtheria, however, cultures may not be of any assistance because the membrane which may be very limited in extent is situated so far down that it cannot be reached with the swab. The diagnosis, however, of laryngeal diphtheria can in the majority of instances be made from the clinical symptoms. It has frequently happened, during the past nine years, that a patient would be admitted to the hospital with characteristic symptoms of laryngeal diphtheria without any membrane to be seen on the tonsils, with negative cultures, who after being intubed would have a violent fit of coughing and who would expel not only the intubation tube, but a cast of the larynx. As bearing on this point the following case is of interest; that of an adult patient who had no membrane in the throat, no congestion of the mucous membrane, negative cultures, but who did have marked symptoms of laryngeal stenosis. He was intubed on entrance, and in three minutes expelled the intubation tube and a cast of the larynx, trachea, right and left bronchus. The dyspnea was relieved, and for three days there was no difficulty in his breathing. At the end of this time there were indications of laryngeal stenosis, and he was intubed a second time. A second time he expelled the intubation tube and a second cast of the larynx and trachea. For the next ten days the patient was apparently doing well, but he finally died. At the autopsy there was found a broncho-pneumonia and an old tubercular process in one lung. Cultures taken from the cast showed the presence of the bacilli of diphtheria. In this case bacteriology cannot be considered at fault because there was no membrane in the throat and no indication of diphtheria except the peculiar character of the dyspnea, which was entirely different in its clinical symptoms from the dyspnea of pneumonia and the dyspnea due to disease of the heart. Experience has taught me that where there is marked dyspnea with rigidity of the sterno-cleido-mastoid muscles with supra-clavicular and sub-sternal retraction excluding a retro-pharyngeal abscess, peritonsillar abscess and a tumor pressing on the larynx, we have to deal with a case of laryngeal diphtheria. Any one who has observed the edema caused by a small patch of diphtheritic membrane on the tonsils can readily understand that a very small patch of membrane on or below the vocal chords may cause edema of the glottis sufficient to interfere with respiration. The condition just mentioned explains why in many instances of laryngeal diphtheria we fail to see any membrane and that cultures are negative. It must be borne in mind, however, that in all of these cases of laryngeal diphtheria, although we have negative cultures from the throat, the cultures taken from the intubation tube are invariably positive.

Before the discovery of the bacillus of diphtheria, the physician was always in doubt regarding the time when his patient should be discharged from isolation. With the aid of bacteriology we have a definite rule to guide us. Much has been said regarding the presence of the bacilli

[3] E. Macé: Traité de Bactériologie.

of diphtheria in the throats of individuals perfectly well. Much also has been said regarding the pseudo-diphtheria bacillus and much regarding other bacilli that might be mistaken for the bacillus of diphtheria. A great deal of the work that has been done in this line has been extremely inaccurate. While it must be conceded that in certain rare instances a bacillus resembling morphologically the bacillus of diphtheria may be found in the throats of well persons, yet, this occurs so rarely as not to be of any very great significance. Some years ago I examined bacteriologically the throats of 150 individuals in whom there were no throat symptoms. In no instance did I find an organism that on careful examination could be mistaken for the bacillus of diphtheria. Within the past few years I have examined the throats of 60 nurses on duty in the diphtheria ward of the South Department, and in no instance was the bacillus of diphtheria found in the cultures. A positive culture during the incipient stage of diphtheria is very frequently obtained from the throat twenty-four or forty-eight hours before there is any membrane. This is not a theoretical statement, but is the result of personal experience. It therefore emphasizes the importance of taking cultures in every case of sore throat.

It has been claimed that the period of isolation is prolonged by culture-taking. While this may be true in a small number of cases, yet in the long run it lessens the time of quarantine. Dr. E. W. Goodall,[4] Medical Superintendent of the Eastern Hospital, Homerton, London, in the Report of the Metropolitan Asylums Board for 1903, makes the following statement: "During the year no diphtheria patient has been discharged from the hospital until two consecutive bacteriological examinations of the fauces have proved negative. This practice I commenced on the 1st of November, 1902. I fully expected that in consequence the period of detention would be lengthened; but, as a matter of fact, it is shorter than in any year since 1899, when it was 57.6 days. As in that year no bacteriological examinations for discharge were made, all one can say at present is that these examinations do not appear to lengthen the period of detention of diphtheria patients in hospital."

Six years ago it was my custom to require three consecutive negative cultures from the throat and from the nose, but I found by experience that a positive culture after there had been two consecutive negative ones was extremely rare. I have, therefore, returned to the practice of having two consecutive negative cultures before discharge. In the extremely small number of return cases of diphtheria investigation has proved that the source of infection was not the patient who has been discharged from the hospital, but was either some other member of the family who had a mild attack of nasal diphtheria, or that the disease had been contracted in some other way.

The investigation of Ehrlich regarding the immunization of animals against the poison of certain plants, together with the discovery of the bacillus of diphtheria as the origin of the disease, was the foundation of the experiments which gave rise to the antitoxin of diphtheria.

Behring, Roux, Martin, Chaillou and Yersin[5] experimented for a long time before arriving at definite conclusions regarding the effectivity of the serum of animals, rendered immune to diphtheria, by constantly increasing doses of the toxin, in the treatment of this disease. In the latter part of 1890, Behring made the statement that the serum of animals immune to diphtheria was an important remedial agent in the treatment of the disease. The first use of the serum on man was not particularly successful because the antitoxin was not of sufficient strength. Later, however, Behring, Ehrlich, Roux and Martin increased the strength of the serum and had gratifying results. The most comprehensive account of the investigations on antitoxin was given by M. Roux at the International Congress of Hygiene and Demography at Budapest in 1894. The statistics that he gave were remarkable. He stated that in certain hospitals where the death-rate from diphtheria had been 58% before antitoxin was known, since its advent the rate had fallen to 20%. It is a matter of common experience that, previous to 1894, every physician in the country who had to deal with diphtheria felt that he had a hopeless problem to solve, and therefore the reports that came from the other side of the water of the beneficial results of the serum treatment were received with skepticism at first, then with partial belief, and later, when it was fully demonstrated that antitoxin was instrumental in decreasing the death-rate, with full belief in its efficacy. Bayeux in his monograph on diphtheria makes the following statement based upon an analysis of 230,000 cases reported from all parts of the world, that the death-rate of diphtheria before antitoxin was used was 55%; that since the advent of the serum the death-rate has fallen to 16%.

Boston has suffered more from diphtheria than any of the larger cities in this country. Why diphtheria has been more prevalent in Boston than in any other city has not been satisfactorily explained. The death-rate at the Boston City Hospital, proper, before antitoxin was used, from 1888 to 1894 was 43.20%. The death-rate since 1895, the latter part of which year the South Department was opened, and antitoxin was given to every patient ill with diphtheria, to 1904, inclusive, was 11.84%.

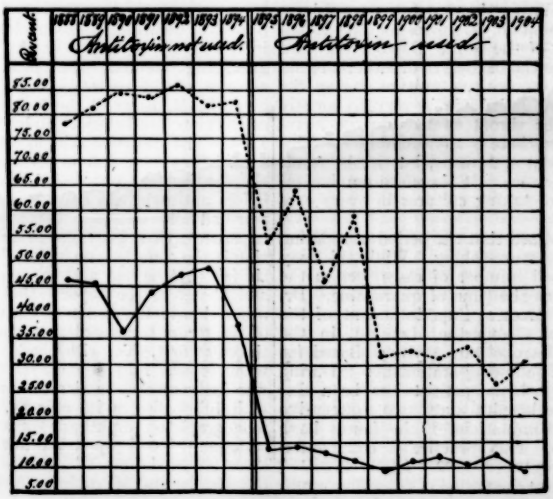
Chart A shows the per cent of mortality of diphtheria at the Boston City Hospital, proper, and at the South Department from 1888 to 1904, inclusive, with the per cent. of mortality of intubations for the same time. By following the full black line it will be seen that previous to 1895 the death-rate varied from 46% in 1888 to 48% in 1893. In 1890 and in 1894 the death-rate was 36% and 38%, respectively. In 1895 the latter part of which year the South Department was

[4] Report of the Metropolitan Asylums Board, London, p. 209.

[5] Dr. L. Deutscher, Dr. C. Feistmantel: Die Impestoffe und Sera.

opened, the death-rate fell to 14%. In the earlier part of 1895 antitoxin was given to a certain extent, and there was a very marked diminution in the death-rate. In 1896 the death-rate was 14%, and since that time it has diminished gradually to 9.50%. This diminution from 14% may be explained by the administration of large doses of antitoxin to patients apparently moribund; and also by the fact that now patients are admitted to the hospital earlier in the course of the disease than during 1895 and 1896. It has been stated that the death-rate in 1904 was 9.50%, but it is of interest to note that if the deaths that occurred within twenty-four hours of admission are eliminated, of which there were forty, the

CHART A.



Per cent. of mortality of diphtheria at the Boston City Hospital, and at the South Department, from 1888 to 1904, inclusive. Per cent. of mortality of intubations for the same time. 1888 to 1894 antitoxin not used: 1895 to 1904 antitoxin used.
Diphtheria ———.
Intubation .....

were treated with antitoxin, the death-rate from diphtheria was 10.18%. If in the same hospitals the death-rate from the tracheotomy cases for 1903, which was 31.82%, is compared with the death-rate of the intubation cases at the South Department for the same year, which was 26.61, it will be seen that there is a diminution of 5% in the intubation cases at the South Department as compared with the tracheotomy cases at the London hospitals. In the London hospitals there were 176 tracheotomies and at the South Department there were 139 intubations during the year.

The effect of antitoxin and hospital treatment on the death-rate of Boston is shown by Chart B,

actual mortality of diphtheria amenable to treatment is found to be for the year 6.95%. In Chart A the broken line represents the mortality percentage of intubation cases, and it will be found by looking at the chart that the mortality rate of intubation cases previous to the use of antitoxin varied from 78% to 86%. On the other hand, from 1895 to 1904 the mortality rate of operative cases of laryngeal diphtheria varied from 64% to 26%. Since 1899 the death-rate in the operative cases at the South Department has varied from 33% to 26%. In 1903 the death-rate was 26.61% and in 1904 it was 30% and a large fraction. This diminution in the mortality rate can only be explained by the use of antitoxin. In the Annual Report of the Metropolitan Asylums Board of London for the year 1903, it is stated that at the eleven hospitals under the jurisdiction of this board where 4,839 patients

which indicates the ratio of mortality of diphtheria per 10,000 of the population for thirty years, from 1875 to 1904 inclusive. It will be seen that for the twenty years from 1875 to 1894 before antitoxin was used, the rates of mortality ranged from 21.78 to 6.23, with an average for this time of 14.46 per 10,000 of the population. If a comparison is made for these twenty years with the nine years commencing with 1896 and ending with 1904, it will be seen that in only one year of the twenty was the death-rate as low as it has been from 1896 to 1904, inclusive. The year 1895 is purposely omitted because the South Department was not in operation until the first of September of that year. Since 1896 when the ratio of mortality was 9.80 per 10,000 of the population, it has gradually fallen with the exception of one year when it was 9.57, an epidemic year, to 3.35 per 10,000 of the population, the

rate for 1904. This reduction in the mortality rate is the legitimate result of the general administration of antitoxin and hospital treatment. For the twenty years from 1875 to 1894 the average ratio of mortality per 10,000 of the population in Boston was 14.46, while that from 1895 to 1904, inclusive, was 6.42, a diminution of more than one-half.

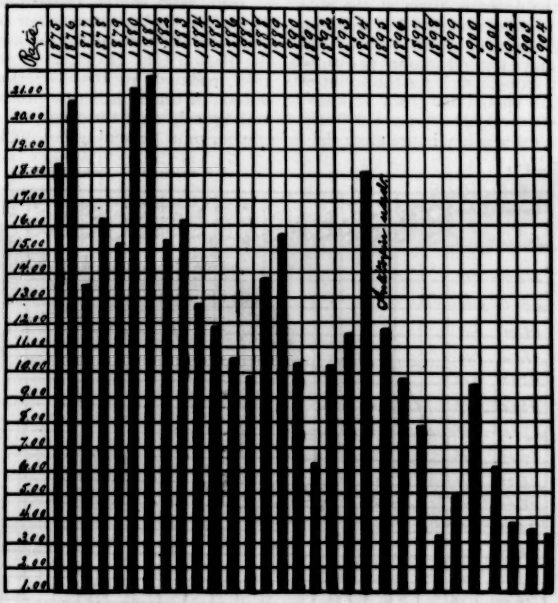


CHART B.

Ratio of mortality of diphtheria per 10,000 of the population in Boston from 1875 to 1904, inclusive.

Chart C shows the per cent. of cases of diphtheria sent to the hospital with the per cent. of deaths from this disease to the population from 1888 to 1904, inclusive. It will be seen from this chart that in 1889 the percentage of mortality of diphtheria to the population was .15 of 1%, and that only 29% of the cases of diphtheria were sent to the hospital. In 1894 the rate of mortality was .18 of 1%, and the percentage of cases sent to the hospital was 23. In 1899 the percentage of cases sent to the hospital was 56, while the mortality rate was .05 of 1% or, in other words, the greater the number of patients ill with diphtheria sent to the hospital the lower the percentage of deaths from diphtheria in the community. This is notably so in the years 1903 and 1904.

It is always well to compare the mortuary statistics of a given disease in one city with those of other cities in the same country. Chart D shows the ratio of mortality of diphtheria per 10,000 of the population in Boston, New York (old city), Philadelphia and Brooklyn from 1885 to 1904, inclusive, a period of twenty years. By following the full black line it will be seen that Boston suffered more from diphtheria from 1885 to 1894 than any of the cities taken for comparison. The average rate of mortality for this period in Boston was 11.80 per 10,000 of the population as compared with Philadelphia with a ratio of 6.55, New York with a ratio of 10.56, and Brooklyn with a ratio of 10.10. It will be seen from this chart that in 1894 in Boston the ratio of mortality per 10,000 of the population was 18; that in 1895 when antitoxin commenced to be used there was a very marked diminution in the ratio. In the years 1902, 1903 and 1904 the ratios are lower than any of the other cities except Philadelphia. By following the dotted line which indicates the ratio for New York (old city) it will be seen that New York did not suffer so much from diphtheria as Boston, and it also can be comprehended at a glance that since 1895 the reduction has not been so marked as in Boston. A similar remark holds good regarding Brooklyn, the ratios for which are indicated by the parallel lines. In Philadelphia, represented by the broken line, the average ratio of diphtheria, per 10,000 of the population, for the ten years from 1885 to 1894 was 6.55, and that for the ten years from 1895, when antitoxin commenced to be used in this country, the average death-rate is 6.21; practically, no diminution from the ratio between the years 1885 to 1894,

inclusive. It is evident from a study of this chart that since 1895, when antitoxin was used, the diminution in the mortality rate of diphtheria per 10,000 of the population has been more marked in Boston than in any of the cities taken for comparison.

In laryngeal diphtheria the dyspnea in a certain number of cases is relieved without operative interference by the use of the serum; this is more apparent when the agent is given at the outset of the disease. In a patient who has that peculiar brassy cough, rigidity of the sterno-cleido-mastoid muscles and a limited amount of dyspnea, it is worse than useless to wait for the result of a culture. Antitoxin should be given at once in doses of from 4,000 to 6,000 or even 8,000 units. In many of these cases a few hours after the injection the physician will have the gratification of finding an abatement in the severity of the symptoms, and the patient in twenty-four hours will pass from a condition of great danger to one of comparative security. This effect of the serum is so marked that it is almost beyond belief. If I had not seen this occurrence so many times during the past few years I should not speak so emphatically regarding it.

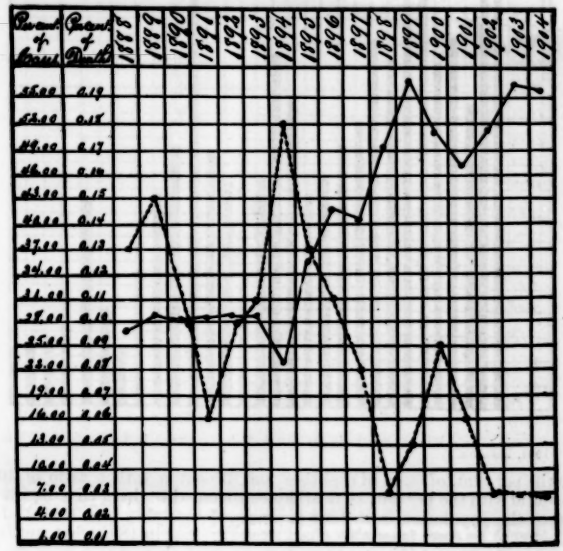
In the operative cases of laryngeal diphtheria antitoxin is of great use in preventing the extension of the membrane, if given in sufficiently large doses. When the intubation tube or the tracheotomy tube becomes clogged with a thick, tough, tenacious mucus it is evident that the diphtheritic process is extending to the bronchi. This is the time when antitoxin should be given in large doses, 20,000, 30,000, or 40,000 units may be administered with positive benefit in the majority of instances, and with no harm to the patient.

In the 1,553 intubations at the South Department since the first of September, 1895, extension of membrane to the bronchi was the cause of death in only 78 instances, or 5.02%.

Of the 327 cases of tracheotomy performed at the Boston City Hospital, proper, from 1864 to 1887, collated by Drs. Lovett and Munro,[8] extension of the diphtheritic process to the trachea and bronchi was the cause of death in 101 instances or a percentage of 30.88. It is evident from the foregoing statistics that antitoxin certainly had a beneficial effect in limiting the extension of membrane in the operative cases. Bronchopneumonia is always a very important factor in increasing the death-rate of operative cases of laryngeal diphtheria. Of the deaths occurring in the 1,553 intubation cases at the South Department from Sept. 1, 1895, to Dec. 31, 1904, the per cent of deaths due to bronchopneumonia was 17.06.

It is beyond the scope of this paper to enter

CHART C.



Per cent. of cases of diphtheria sent to the hospital with the per cent. of deaths to the population from 1888 to 1904, inclusive.
Per cent. of cases sent to hospital ——.
Per cent. of deaths to population .....

[8] A consideration of the results in 327 cases of tracheotomy performed at the Boston City Hospital from 1864 to 1887, by Robert W. Lovett, M.D., and John C. Munro, M.D., formerly house surgeons at the hospital.

into a long discussion regarding the advantages of intubation as compared with tracheotomy. In 1858 when Dr. Bouchut of Paris first conceived the idea of introducing a tube into the larynx through the mouth the operation has had devoted adherents and bitter opponents. Trousseau strongly opposed this operation and for a time it was given up. In 1880 O'Dwyer commenced his experiments on intubation. For a long time the operation did not meet with approval by the profession at large. As time went on, however, due to the persistent work of O'Dwyer of New York and Waxham of Chicago, the operation met with marked recognition in this country, proved in America, and finally was perfected in France. The latter statement must be taken with a certain amount of reservation. Much has been said regarding the causation of inhalation pneumonia in an intubed child, but the danger of this is more theoretical than practical. Dr. William P. Northrup[6] in the Transactions of International Medical Congress at Washington, 1887, says:

"... The experiment has been tried of inducing 'schluck pneumonie' by feeding the child on milk and other fluids, having finely divided carbon in suspension. If this insoluble powder, having a contrasting color, were taken into the

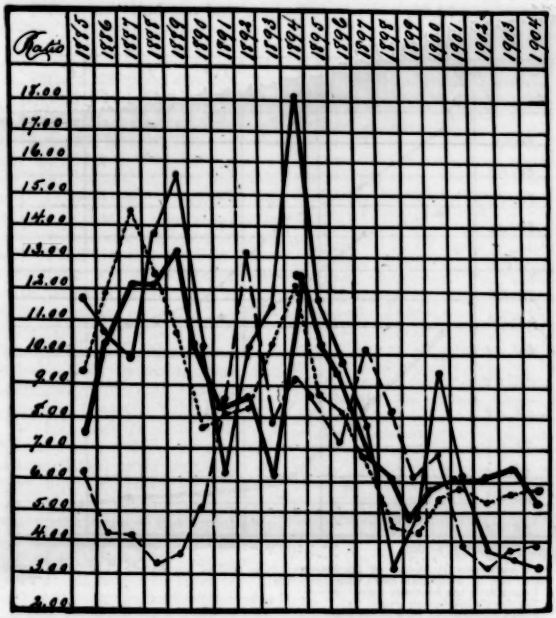


CHART D.

Ratio of mortality of diphtheria per 10,000 of the population in Boston, New York, Philadelphia, Brooklyn, from 1885 to 1904, inclusive.
Boston ———. New York ..... Philadelphia — — —. Brooklyn ═══.

and it is now the accepted operation of election in laryngeal cases of diphtheria. In Paris, in the hospital wards named for Trousseau, as stated by Bayeux, intubation is performed in nearly all cases of laryngeal diphtheria. The French tubes are shorter than the American, but it is very doubtful if this is a distinct advantage. The idea is not to be conveyed that all cases of laryngeal diphtheria are suitable for intubation, but it is a fact that in the vast majority of instances intubation is the better operation. Bayeux[7] says that intubation is the operation of election; that tracheotomy is the operation of necessity; that intubation originated in France, was improved in America, and finally was perfected in France.

[7] La Diphtérie Avant et Depuis l'Année, 1894, par Raoul Bayeux.

lungs in elective regions, it would be possible to find it later.

"In these experimental cases the powdered carbon (bone black) was given while the child was able to swallow fairly well, so as to make the test satisfactory, and for the same reason it was discontinued when the child became enfeebled and was about to die.

"I may say that I have never found any evidence that milk or bone black had passed into the lungs of a child wearing a laryngeal tube. The smallest particle of milk, bathing the under surface of a swollen and insufficient epiglottis,

[6] Transactions International Medical Congress, Washington, D. C., 1887, p. 511.

would excite violent cough. It does so in laryngeal tuberculosis in the adult."

It would seem as if these experiments of Northrup should be effectual in removing the fear of inhalation pneumonia as occurring as an accident in an intubed child.

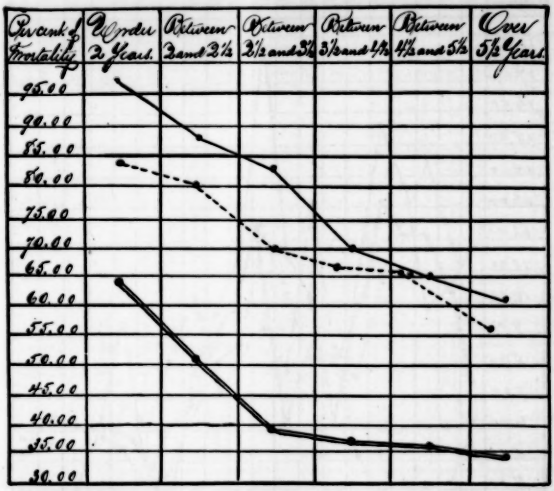
Jacobi, previous to 1895, says that out of 1,024 operations of tracheotomy performed in various parts of the world, but principally in Europe, the percentage of mortality was 78.52.

In the 327 tracheotomy cases at the Boston City Hospital from 1864 to 1887, the death-rate was 70.95% as given by Drs. Lovett and Munro.

Dr. Max J. Stern of Philadelphia, in collating Bourdillat's statistics, gives the percentage of mortality of tracheotomy as 73.60.

under two years of age was 97%; that Waxham's mortality rate of intubation previous to antitoxin was 84.38%, while that of the South Department was 64.98%. Between the ages of two and two and one-half years the percentages were 88 for Bourdillat, 80.54 for Waxham, and 51.99 at the South Department. From two and one-half to three and one-half the rates in the same order are 83%, 70% and 39.97%. Between three and one-half and four and one-half years of age Bourdillat's per cent. is 70, Waxham's 67.35, and the South Department 37.89. From four and one-half to five and one-half years Bourdillat's per cent. is 65, Waxham 66.08, and the South Department 36.99. Over five and one-half years, 61% in Bourdillat's statistics, 56.67% in Waxham's and 34.97% at the South Department.

CHART E.



Percentage of mortality of tracheotomy cases and of intubation cases without antitoxin, and of intubation cases with antitoxin.
Bourdillat's tracheotomy cases ———.
Waxham's intubation cases .....
South Department intubation cases ═══.

Waxham collected 1,072 cases of intubation performed in various parts of the United States, and he gives the mortality per cent. as 73.23.

At the South Department from September, 1895, to Dec. 31, 1904, the death-rate of the 1,553 intubation cases was 44% as compared with 73.60% in Bourdillat's tracheotomy statistics, or with 73.23% in Waxham's intubation statistics.

As showing the relative advantages of intubation with antitoxin as compared with tracheotomy without and intubation without, Chart E has been prepared.

By following the full black line which represents the tracheotomy mortality rate and the broken black line which represents Waxham's intubations and the parallel lines which represent the South Department intubations, it will be seen that the mortality rate of tracheotomy

In order to derive the greatest possible advantage from antitoxin it should be given at the earliest possible moment in the course of the disease, even before the membrane has commenced to form. It is at this time, when there is a certain amount of congestion of the mucous membrane of the throat, that a bacteriological examination is of great use, because almost invariably at this stage a positive culture will be obtained. If antitoxin is given at once it will prevent the formation of membrane. This has been proved by numerous experiments in the laboratory. It has also been demonstrated by personal experience. Unfortunately, the physician, as a rule, is not called until there is a certain amount of membrane in the throat, and therefore much

valuable time is lost. In the report of the State Board of Health for 1902 is an interesting table giving the fatality per cent. of diphtheria according to the day of the administration of antitoxin. In 1,433 cases in which antitoxin was given on the first day the mortality per cent. was 7.9; when the serum was given on the second day in 3,284 cases the percentage was 6.2; when it was given on the third day in 2,654 cases the percentage was 9; on the fourth day in 1,687 cases the percentage was 12.9; on the fifth day in 864 cases the rate was 15.9%; on the sixth day and later in 1,242 cases the percentage was 17.6. It must be taken for granted that when it was stated that antitoxin was given on the first day of the disease, the chances are that in many instances the physician did not see the patient until the second day when the symptoms were pronounced; but even with this source of error the importance of the early administration of the serum is demonstrated; for instance, the fatality per cent. on the first day is given as 7.9, while that on the sixth day and later is 17.6. At the South Department there have been 190 cases of diphtheria among the doctors, nurses and employees since Sept. 1, 1895, and there has not been a death, which is due unquestionably to the fact that antitoxin was administered in large doses at the outset of the attacks, even in many instances before there was any membrane apparent, but where the mucous membrane of the throat presented the peculiar congested appearance which is characteristic of the first stage of the disease. The question of the amount of serum to be given is a very important one, and the same rule holds good with antitoxin as with any other drug, namely, that the remedy should be given until the full therapeutical action is apparent. In the early stage of the disease from 4,000 to 6,000 or even 8,000 units should be administered and this should be repeated every six or eight hours, depending upon the condition of the patient and the appearance of the membrane. In some instances four hours after the dose has been administered the membrane commences to roll up at its edges and seems to have lost its vitality. If there has been a marked septic odor, it is often not apparent after the first dose of antitoxin. If, however, there is no improvement in the condition of the patient, both generally and locally, six or eight hours after the dose has been given, a second of from 4,000 to 8,000 units should be administered. This should be repeated until there is a decided improvement in the appearance of the throat and a relief of the general symptoms. It seems to me that no patient ill with diphtheria, unless actually moribund, should be considered in a hopeless state, for I have seen in the past nine years too many patients apparently moribund recover after very large doses of antitoxin. This statement is not based on theoretical grounds, but is the result of personal experience at the bedside of the patients. I feel very strongly on this point, because I am satisfied in my own mind that many lives have been sacrificed from the failure of the physician to give sufficiently large doses of the serum from the fear, no doubt, of possible injurious effects following its heroic administration.

As bearing on the point of large doses of antitoxin a clinical history of three cases selected at random, where large doses of antitoxin were given, may be of interest.

Case I. A man, nineteen years of age. He had been ill three days when admitted. On examination the following condition was found: enlarged cervical glands with great tenderness; a profuse nasal discharge; tonsils greatly enlarged, meeting in the median line, and covered with thick diphtheritic membrane; uvula covered with membrane; profound prostration. Prognosis unfavorable. This patient had 90,000 units of antitoxin in five days. The throat cleared in three days; the nasal discharge diminished; the offensive odor of the breath was not so marked. The patient was discharged well in thirty days. Albuminuria was not pronounced. There were no complications of serious import due to the use of antitoxin. Urticaria and arthralgia, although present, did not cause a great amount of discomfort.

Case II. A girl, eleven years of age. This patient had been ill two days when admitted. Her condition was as follows: Marked prostration, profuse nasal discharge, extensive membrane on the tonsils and uvula, a strong fetid odor, the action of the heart was irregular, and the sounds indistinct. In four days she received 52,000 units of antitoxin. Urticaria and arthralgia caused some considerable discomfort. No paralysis developed. The patient was discharged well in thirty-nine days. From the rapid spread of the membrane in the two days before admission to the hospital it is evident that this was an extremely virulent attack of diphtheria. The conclusion that the girl would have died if antitoxin had not been given in large doses is justifiable.

Case III. A woman whose age was forty-eight years. She had been ill five days. On entrance the tonsils, posterior pharyngeal wall, uvula and soft palate were covered with a thick diphtheritic membrane. There was also a patch of membrane on the lower lip. The cervical glands were enlarged. The patient was aphonic; there were frequent attacks of dyspnea, so that at one time operative interference was imminent. She was unable to swallow and was, therefore, nourished by the rectum. The prostration was profound. In five days 48,000 units of antitoxin were given; 12,000 units being administered the first day. At the end of the fifth day the throat was practically clear, the general condition of the patient much improved. The cervical glands suppurated. For two or three days the slightest possible trace of albumin was found in the urine. Urticaria and arthralgia caused a certain amount of annoyance. There was no special heart complication, although at one time the action of the heart was irregular, as is always the case in severe attacks of diphtheria. Post-diphtheritic paralysis ensued, but was not sufficient at any time to cause great anxiety. If a less amount of antitoxin had been given, the patient would have died without doubt. She had a tedious convalescence, but was discharged well, and seven months after the date of the attack was in good health. It is of interest to note that four other members of this family had diphtheria, but as antitoxin was given early in the course of the disease, only small doses were required.

Many more cases might be cited in which large doses of antitoxin were given with satisfactory results, but enough has been said to prove that

small doses of antitoxin are of little avail in the treatment of grave types of the disease; that, in order to obtain the best results, the serum must be heroically administered. It is true that all of the patients to whom large doses of antitoxin have been given have not recovered, but so many of them have that one must be convinced that large doses are imperatively demanded in very severe cases. When death has occurred, it has been from nerve degeneration or from sepsis. In no instance was there any injurious effect produced by either the large or small doses of antitoxin. Albuminuria, although present in many cases, cannot be attributed to the serum, as albuminuria is one of the most frequent symptoms in diphtheria. Heart complications of a serious nature have not been so frequent in the patients treated at the South Department, nearly 15,000, as would have been the case in a like number treated without antitoxin. Paralysis, although occurring in the severer cases, has not been so frequent as it would have been in an equal number of cases treated without antitoxin. Urticaria and arthralgia are certainly very annoying complications, but they do not imperil the life of the patient, and are, therefore, not worthy of being considered an argument against the use of the serum. It has been observed that the serum from certain horses caused a larger per cent of urticaria than that from others. There is no explanation of this fact. It is to be hoped that in the future there may be some way of eliminating this troublesome symptom. The time in which an urticaria may appear varies from ten minutes after the injection of antitoxin to five weeks. Abscesses after the injection should be of rare occurrence, and when they do appear are an indication of some error of technique in the sterilization of the syringe, or in the quality of the serum.

The beneficial effects of antitoxin for immunization have been demonstrated by the experience at the Children's Hospital in this city and also at the Infants' Hospital. Since 1887, according to Dr. Rotch, when immunization of every patient was commenced at the Children's Hospital, there has not been any outbreak of diphtheria among the patients. Previous to that time the wards were frequently closed on account of the prevalence of this disease. In February, 1900, immunization was commenced at the Infants' Hospital, and since that time there has not been any outbreak of diphtheria.

The immunization of patients in the scarlet fever wards at the South Department has been productive of much good, as there has been no outbreak of diphtheria in these wards since immunization was commenced.

It is evident from the foregoing statistics: *First*, that antitoxin is a remedial agent of immense value in the treatment of diphtheria, and should be clased among the great medical discoveries of the nineteenth century.

Second, that in order to obtain the best results it is important that the serum should be given at the earliest possible moment in the course of the disease.

Third, that in attacks of diphtheria of a severe type antitoxin should be given in very large doses.

Fourth, that in laryngeal diphtheria, in the majority of instances, intubation is the operation of election.

A DESCRIPTION OF "PFEIFFER'S DISEASE" (GLANDULAR FEVER), WITH A REPORT OF TWO CASES.

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A NUMBER of cases of so-called "Pfeiffer's disease" have recently been observed in and about Boston. I have reason to believe that in many instances the condition has not been recognized. It is of practical importance to recognize the disease; inasmuch as a relatively mild and, so far as known, harmless affection may be regarded as serious and treated too radically. I will give a brief description of the disease together with the histories of two cases which I attended. The disease was first described by E. Pfeiffer in 1889 and given the name of "glandular fever" (*Drüsenfieber*). Since then it has generally been referred to as "Pfeiffer's disease."

Pfeiffer believed it to be an infectious disease, but left it to future investigation to determine whether it should be regarded as an entity or not.

The disease is characterized by an elevated temperature lasting for a short time and by a rapid enlargement of lymph-nodes in the neck, especially those situated in the sides of the neck along the posterior border of the sterno-mastoid muscle in the region of the upper third. The disease is further characterized in most cases by the mildness of the symptoms and in all cases by the eventual subsidence of the swollen lymph-nodes without the occurrence of suppuration.

Etiology.— The etiology is unknown. The disease occurs most frequently between the ages of two and eight years, although infants and older children are not exempt. According to Pfeiffer it is of common occurrence. Its infectious character is suggested by the onset and course of the disease and by its occasional occurrence in several members of a family within a short space of time. The disease is observed most frequently in fall and winter. A resemblance to influenza is shown by the occurrence of muscular pains and symptoms of a mild catarrhal condition of the nose and throat.

Symptoms. — The disease begins suddenly with elevated temperature, at times as high as 104°F. Older children may complain of pains in the body and extremities. In some cases there is pain in the abdomen in the median portion below the umbilicus. There is loss of appetite, malaise and, in some cases, vomiting. The tongue is coated and the bowels are constipated as a rule. There is some redness of the soft palate and pharynx and, in some cases, a slight discharge from the nose. The children complain of pain and tenderness in the neck. The pain is not often

spontaneous, but is caused by movements of the parts, or by handling. There is often some discomfort or slight pain on swallowing and there may be slight cough. These symptoms are not usually very marked.

The enlargement of the lymph nodes in the neck can be detected by palpation very soon after the onset of the disease. The enlargement is most marked, within a day or two, in the posterior portions of the neck, especially along the border of the sterno-mastoid muscle about its upper third. At this point the nodes are frequently visible as packets. In other parts of the neck they can be felt as discrete nodules. The skin over the lymph-nodes is normal. The nodes themselves are usually soft and movable and rather tender to the touch. As a rule the enlargement affects one side first and in some cases only one side is affected. In most cases the nodes are larger on one side than on the other. The axillary lymph-nodes remain unaffected.

In mild cases the temperature is only slightly elevated, and the pains in the extremities may be entirely absent. In such cases the elevation of temperature may not last more than one day, but the enlarged lymph-nodes persist for several days.

In moderately severe cases the temperature may last for two or three days and, in some cases, it may persist for eight or ten days. A varying degree of pallor and weakness is apt to remain for some time after the disappearance of the other symptoms.

In severe cases it may be possible to detect enlargement of the spleen and liver by palpation during the acute stage of the disease.

Heubner described the disease in an infant in which the lymph-nodes swelled up and subsided three times in four weeks.

Complications. — Heubner noted the occurrence of acute nephritis in two cases. Starck reported it in one case out of twelve cases which he had observed and Rauchfuss reported it in one case out of two. The character of the nephritis in these cases was similar to that after scarlet fever. A diminished quantity of urine, albuminuria, hematuria, lymphoid cells and casts, and, occasionally, anarsarca. All of these cases terminated favorably without uremic symptoms.

In one of Heubner's cases of nephritis the lymph-nodes enlarged again on one side of the neck and suppurated.

Diagnosis. — The diagnosis is not difficult if the sequence of symptoms is borne in mind. The acute onset and symptoms followed by swelling of lymph-nodes not previously enlarged, the presence of tenderness and the final disappearance of the enlargement within a short time present a characteristic picture. The location of the enlarged lymph-nodes in the sides and posterior portions of the neck and especially the marked enlargement at the upper third of the sterno-mastoid muscle serve to distinguish this condition from other swellings in the neck. The chief swelling is below the region of the parotid gland which will distinguish it from parotitis.

Enlargement of lymph-nodes associated with inflammation in the tonsils can be excluded because in Pfeiffer's disease it is possible to determine by palpation that the enlargement is situated at some distance from the angle of the jaw. In tonsillar inflammation the lymph-nodes which are earliest affected are in the immediate vicinity of the angle of the jaw, and in such cases there would not be a general enlargement of lymph-nodes throughout the neck. In tubercular adenitis the enlargement is never rapid and the consistency of the enlarged lymph-nodes is much firmer, and the characteristic onset and symptoms of Pfeiffer's disease would be absent.

It is scarcely necessary to point out that the presence of an enlarged lymph-node here and there in a child's neck does not warrant a diagnosis of Pfeiffer's disease.

Prognosis. — The prognosis is always favorable. The swelling may subside in a few days, or a week. In other cases it persists for three or four weeks as the only remaining symptom. In the mild cases the subjective symptoms often subside in one or two days, in severer cases in eight or ten days. A varying degree of pallor and weakness and loss of appetite may persist for some time afterward even in mild cases.

Treatment. — The treatment is symptomatic and in many cases very little is required. The possibility of a complicating nephritis, although rare, should be borne in mind, and the urine should be examined both during the disease and after its termination. Tonic treatment may be needed to counteract the subsequent pallor and weakness.

The chief importance of recognizing the disease, it seems to me, is to avoid confounding it with other diseases, such as parotitis, tuberculosis and septic infections.

A diagnosis of parotitis in such a case might cause the family and patient much inconvenience as regards isolation, etc.

A diagnosis of tuberculosis or septic infection would be a source of great anxiety to the family and might even lead to an injudicious operation.

I have observed recently two cases of Pfeiffer's disease, and have heard of several others in this vicinity.

The disease must be relatively rare in this locality because I have been on the lookout for it in my hospital and private practice for at least ten years.

My first case occurred in my own family, and this circumstance may account for the fact that I did not recognize the disease for several days, and only arrived at a diagnosis by exclusion.

The patient is a child, three and a half years old, whose health has always been good. He stated that his throat felt sore and his voice sounded a little thick. He had just recovered from a cold. His temperature was but slightly elevated. His throat was reddened and the tonsils looked a little larger than usual. He was rather pale and did not eat as well as usual, but he did not appear to be ill and so I dismissed the matter from my

mind. A few days later I observed a swelling on the right side of the neck about in the middle of the sterno-mastoid muscle. On palpation there was a good-sized packet of soft lymph-nodes on both sides of the sterno-mastoid muscle. In addition there were numerous discrete lymph-nodes in the posterior and lower portion of the same side of the neck. The skin was normal and not adherent over the swelling and the lymph-nodes were movable. He complained of some pain when I palpated the neck or moved his head. The temperature was not elevated at this time; the tongue was somewhat coated. The tonsils were slightly enlarged and clean and the mucous membrane of the soft palate and pharynx was reddened. A culture from the throat showed a growth on blood serum of streptococcus, but I could not reconcile the absence of symptoms with a streptococcic infection capable of producing enlarged lymph-nodes. In addition, the enlargement was not at the angle of the jaw, but there was a distinct space between it and the enlarged packet of glands. Two or three days later the lymph-nodes enlarged on the left side of the neck, but not to the same extent. The character and location of the swelling were similar on both sides. After about a week the swelling subsided rapidly to a certain point and then diminished slowly, so that some enlargement could be detected at the end of four weeks. During this time the child was quite pale and became fatigued rather easily, otherwise he seemed to feel as usual.

About one week later I was called to one of my patients, a boy seven years old, with a similar swelling on one side of his neck. His temperature was 101° F. and he complained of tenderness in the neck when handled and of pain when he moved his head. Swallowing also caused some pain. These symptoms together with some maaise began on the day previous. The throat was slightly reddened. A culture on serum showed no pathogenic organisms. On the following day his fever had subsided and the tenderness was less marked. On the fourth day he was allowed to go out because he felt so much better. The swelling persisted for several days, but affected only one side.

The mothers of two other patients of mine reported similar swellings in the neck, but the subjective symptoms were so slight that I was not asked to see them. Since then I have heard of several other cases in Boston and its vicinity. In two of these cases the disease was not of so mild a type as those which I have described. One of these children was confined to the house for two weeks and the fever persisted for several days.

This brief description may be of assistance to those who are not familiar with the disease.

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REPORT ON EARLY DIAGNOSIS OF TUBERCULOSIS.*

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THE diagnosis of phthisis, of that well-developed stage of pulmonary tuberculosis, offers no difficulty whatever, the symptoms are well marked and typical, the pulmonary signs easily discoverable, the expectoration contains bacilli; the clinical picture is so typical that mistakes in diagnosis cannot well be made, even by the superficially trained observer. But this stage of pathological development in the great majority of cases is reached only after very long periods, during which all signs and symptoms are less typical, less marked from that time on when infection took place. During this time, which marks the true incipiency of the malady and which anatomically is characterized by the formation of few isolated tubercles in lymph glands or lung tissue, no or only vague general symptoms exist, none on which to base a positive diagnosis of the disease. Investigation has shown that such infections are of very frequent occurrence, and that only in a comparatively small percentage of these cases does the disease develop further. However, this percentage is sufficiently large to make tuberculosis the most destructive of all diseases, and the demonstration of its frequent and spontaneous arrest and of its curability by certain therapeutic measures at an early period of its development, must induce efforts of recognition long before the stage of phthisis is reached.

The discovery of the tubercle bacillus in the sputum of patients suffering from the disease constitutes a diagnostic means of indisputable accuracy. However, the consideration alone of the fact, that tubercle bacilli can appear in the sputum only after the caseification and breaking down of a tubercle situated near a bronchus or bronchiolus makes it certain that tuberculous changes occur previous to the appearance of the bacillus in the sputum. This is borne out also by the clinical observation of a recognizable stage of tuberculous lung involvement, before bacilli are found in the sputum and the adoption of the term "closed," designating this stage, in opposition to "open," *i. e.*, with bacilli found in the sputum, can be recommended for a more general introduction.

From the therapeutic standpoint the diagnosis of pulmonary tuberculosis in its closed stage is of the utmost importance, the chances of permanent recovery diminishing proportionally with the postponement of rational therapeutic measures. These measures, being on the whole nothing but a radical change in the patient's mode of life, will also interfere less with the patients usual occupations, the earlier the diagnosis is made. Hence, also, for this reason, the paramount importance of an early diagnosis. The physician who declines to make a positive diagnosis of tubercu-

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losis on account of the absence of the bacillus in the sputum only, assumes a very grave responsibility, and great caution in this respect cannot be urged sufficiently. Whenever certain signs and symptoms justify a suspicion of the disease, without there being positive evidence, it is wise to instruct the patient carefully as to his mode of life, to watch him closely and to repeat the examination at stated intervals.

As regards the examination, it may be said in general that a close and careful investigation of constitutional as well as local manifestations by the simplest methods will often reveal sufficient evidence for a positive diagnosis. The search for bacilli in the sputum has unfortunately brought about a neglect of these methods.

The history of the patient may or may not contain useful information; it ought to be carefully investigated in every case. Predisposing moments, such as cases of tuberculosis in the family and among intimates or unhygienic mode of life, dusty and confining occupations, must all be taken into consideration, their absence in one case, on the other hand, must not discourage further examination.

The symptoms of incipient tuberculosis will rarely offer anything typical. We may have a very early hoarseness or a condition resembling that of chlorosis or neurasthenia, of bronchitis or dyspepsia. Cough may, or may not, be present. Hemoptysis in the absence of other causes, among all the symptoms, which may be found in the history, is one of the greatest significance. Physical signs are sometimes absent for weeks after the hemoptysis. Vague as all these symptoms may be and characteristic for various morbid conditions, they assume diagnostic value only when considered together with the results of a careful physical examination.

Here inspection, first of all will have to reveal conditions of stature and physical development, which in their deficiencies we know to be indicative, if not of the disease itself, at least, of a predisposition to it. Length and weight of body, circumference and degree of expansion of chest, are data of importance, and in their correlation give indication of the bodily condition and state of nutrition. Still we must not depend on finding often the classical *habitus phthisicus*, the paralytic thorax, if we are to make an early diagnosis of tuberculosis. However, these data as well as the determination of symptoms are of greatest value, if for nothing else but a guidance in subsequent examinations, and for that reason should not be neglected in any case.

Of great importance is the temperature. Even a slight rise of temperature in the afternoon, if other causes can be excluded, ought to arouse invariably our suspicions. Very often this is overlooked, and to shield against such oversight great care in the measuring of the temperature is to be recommended. Whenever possible a two-hourly record for a period of several days ought to be taken, a good thermometer to be placed in the mouth with tightly closed lips and held there for at least five minutes, the patient in a room of even temperature. It will also have to be remembered that in some tuberculous patients the rise of temperature appears only after some exercise, in women before and at the time of menstruation.

The physical examination of the chest by inspection, palpation, percussion and auscultation, if carefully and properly performed, will give more direct evidence than other methods. It may be said here that the newer methods of examination, notably that with the Roentgen rays, cannot, at least, in their present state of development, claim superiority over the results obtained by the above-mentioned methods.

Attention shall be called here only to a few signs indicating limited lung involvement. On inspection very often a retardation in the respiratory movements over the affected lung portion can be observed, especially over one apex. This retardation is more pronounced in a more recent involvement of the corresponding area of the lung. (Turban.) Foci of greater extent diminish the excursions of the diaphragm of the affected side. This can be demonstrated on the fluorescent screen, but equally well and without apparatus by the observation of the diaphragmatic excursions by means of Litten's shadow.

The vocal fremitus in early pulmonary tuberculosis gives little information. It may be increased or decreased over areas of pleural thickening; over pleuritic exudations it is always diminished.

Painstaking percussion and auscultation of the chest, over all parts and always comparing the two sides, is of the greatest value. The use of the blue pencil for marking the border lines and determining the excursions of the lungs cannot too strongly be urged. Strong percussion, on the whole, should be avoided. Marked dullness is but rarely found over portions of the lungs in incipient tuberculosis; however, the percussion will elicit sometimes a significant retraction of one apex as compared with the other.

In judging the results of the examination by auscultation, it should always be remembered that many of the signs are subject to considerable variation, depending on the time at which the examination is made. Râles which we can easily discover in the morning will regularly be absent during the afternoon. Also on damp and rainy days we will find them when they are absent in dryer weather. Also do we find in women pulmonary signs accentuated at the time of menstruation.

All these circumstances must be considered before a final judgment of the case is given.

Although every portion of the lung (including the lingula over the heart dullness) should be examined with the stethoscope, particular attention will have to be paid to the upper portions of the lungs and also to the lower borders and the axillary regions.

As the earliest auscultatory sign in early pulmonary tuberculosis we can regard the rough and the slightly diminished respiratory murmur. The former must not be confounded with the sharp

(puerile) respiratory murmur, which is more a sign of increased function than of swelling of the mucosa. Both are vesiculary sounds; the rough character is produced by a succession of murmurs, following each other too rapidly for aural differentiation. Is the succession less rapid, then we speak of an interrupted respiratory murmur, which suggests much coarser changes. Thus the rough murmur changes the character of the respiratory sound, it loses its "smooth" quality and becomes "impure and roughened." (Sahli.) When these adventitious sounds become audible beside the vasicular murmur, then we can speak of râles. The rough murmur is produced by slight inflammatory changes in the bronchioli, the air passing over an uneven surface and through a slightly narrowed lumen. It is principally audible during inspiration over the apices and below the clavicles. This murmur precedes the appearance of râles (not the case, as a rule, with the puerile murmur), and thus is the earliest auscultatory manifestation of tubercular involvement of the air passages. Distinct attention should be paid to it therefore. The appearance of râles over the apices (also in the axillary region) is next to it in importance. Râles indicate catarrhal conditions; with them the intensity of the vesiculary murmur is usually diminished, which is also produced by the more pronounced swelling of the bronchial mucosa. In the earliest stages we hear usually fine crackling râles, they can often only be heard directly after the patient has coughed.

Bronchial respiration we hear but rarely in early tuberculosis; when it appears, we have to deal with a more extensive process. By its localization in the apices and together with other signs it is, of course, pathognomic of consolidation; the same may also be said as regards the other deviation from the normal respiratory murmurs, which are indicative of profound tissue changes, to discuss which does not come within the scope of this report. On the other hand pleuritic friction is often heard at an early period, most frequently in or near the axillary line between the sixth and eighth ribs.

Only passing mention can be made of other diagnostic methods, of which tuberculin is the most important. Although it is well understood that by injection of small doses of tuberculin and by the febrile reaction thus produced in tuberculous individuals, we can diagnose early tuberculosis, the method necessitates great care in its application and an apparatus too complicated for general use, so that it does not lend itself to a more general introduction. The dangers of the preparation in the hands of one well acquainted with the method are very slight, but by applying carefully the other means of observation and examination, a case will rarely be found in which it would add considerably to the information gained.

The fact that certain salts, especially iodine salts, increase catarrhal symptoms and thus make them more perceptible to auscultation, has led to their administration for diagnostic purposes. For similar reasons as the above stated, a general introduction of this method cannot be recommended.

The examination with x-rays has the drawback of a complicated apparatus. Besides, its value over the other methods has not yet been satisfactorily demonstrated.

Various other methods have been advocated for the early detection of tuberculosis, — inoscopy, sphygmography, sphygmomanometry, serum test, etc., all apt to increase our knowledge of the disease, but of no practical advantage in the everyday diagnosis of so frequent a disease. The careful and painstaking application of the methods well taught and well understood, with the simplest apparatus, but applied with a broad conception of the pathogenesis of the disease, will bring about much earlier diagnoses than are usually made.

A CONSIDERATION OF THE PELVIC ARTICULATIONS FROM AN ANATOMICAL, PATHOLOGICAL AND CLINICAL STANDPOINT.

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AND
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(Concluded from No. 21, p. 601.)

CASE I. A patient of Dr. James M. Jackson, thirty years of age, was delivered of a still-born child in the early part of April, 1903. Two years previously a healthy child was born without special difficulty, though with high forceps. After the birth of the first child the patient had been perfectly well, except for an occasional attack of pain in the abdomen, due to a floating kidney. The first part of the recent pregnancy was entirely uneventful. Four months before the child was born, there was an attack of pain due to the floating kidney, and it was necessary for her to remain in bed on her back for two weeks. On getting up she was very weak, especially in the lower part of the back. Walking was difficult, even about the room, and there was a sensation as if breaking down. Walking any distance was practically impossible, because of the discomfort felt about the pelvis. From this time on until delivery, the patient remained quiet at home, and for the last three weeks of the time was kept in bed. The labor started normally. The cervix was taken up, but after this no progress was made. High forceps were tried, but the head was so placed that they could not be applied, and after waiting for some time, version was done, but the child was delivered dead. At the time of the beginning of labor the child was alive, and at the autopsy there was no evidence of any form of disease. Soon after the delivery it was noticed that the symphysis pubes was much separated, so that the finger could be placed between the pubic bones, and when the patient attempted to move the legs or turn over in bed the pubic bones and also the bones at the sacro-iliac articulations moved about. Belts fastened tightly about the pelvis had been used by the attending physician without relief. At the time of the first consultation, no other suggestions were made, but another belt was fitted, and this was continued for a number of days, applied so tightly that the skin was bruised from pressure. A short time after this the patient was turned on her side, so that for the first time it was possible for a thorough examination. At that time the noticeable feature was the absolutely flat back, and instead of the sacrum

inclining forward upward toward the lumbar spine, it rested flat upon the bed, and the curve of the lumbar spine was entirely obliterated.

Thinking that in all probability the sacrum had been dislocated backward, a plaster of Paris jacket was applied with the patient in the horizontal position, steels being used to support the lumbar spine in its normal curve, and to force the sacrum forward into its proper position. It was not possible, with the jacket applied in this way, to make a perfect fit about the buttocks, but nevertheless, in spite of this fact, there was marked lessening of the slipping in the pelvic joints, even though the body was moved about considerably. The patient was kept in bed for a few weeks with steady improvement, and then feeling that the proper support of the sacrum was the key to the situation, another jacket was applied with the patient standing, the weight of the upper portion of the body being supported by crutches. In this position the lumbar spine was arched forward as much as possible, the sacrum pressed forward, and the jacket molded carefully to fit the buttocks and support the lumbar spine. Using this jacket as a model, a leather jacket was made, which when applied gave practically entire relief, so much, in fact, that within a week of the time the jacket was fitted the patient walked an eighth of a mile over comparatively rough ground with little, if any, discomfort. The noticeable thing to the patient was that even though the jacket was applied comparatively loosely, the slipping was controlled. The jacket was continued for several months with comparatively little trouble, except that once or twice, either on account of the softening of the jacket or on account of the change in the figure, naturally resulting from increased activities, the support was not perfect. The discomfort was at once relieved in each instance by having the jacket refitted. After using the jacket for six months in all, an ordinary corset was worn, stiffened with additional steels, and with a belt at the base to give added support. After two or three months this was discontinued. Since then the patient has been well and has led an extremely active life. The joints have not troubled her except occasionally for a few days when overtired, and occasionally at the menstrual period.

Case II. A well-developed woman, thirty-two years of age, was seen in consultation with Dr. W. F. Warren, of Groton, Nov. 11, 1904. At that time the pelvic articulations were much relaxed, so that the bones slipped about on slightest movement. The pelvic bones could be separated fully an inch, and this involved a relatively similar amount of instability in the sacro-iliac articulation. The disability resulting from this relaxation was naturally very great.

Four weeks previous to the time of the first visit a healthy child was born, neither the labor nor the pregnant period being in any way peculiar, except that three weeks before the confinement walking became difficult, owing to the heavy "settling down" feeling. There had been two other pregnancies without trouble.

The condition clearly represented the relaxation associated with pregnancy, and for treatment, a tight swathe was applied about the hips, with a pad over the upper part of the sacrum, and a pillow under the lumbar spine. A sacral brace was ordered and one week later it was applied and the patient allowed to get up for short intervals.

The brace, when up, and the pillow under the back, when lying down, were continued for about two months, after which all symptoms of weakness having disappeared the treatment was discontinued.

This case represents what, in all probability, is to be expected in such conditions, if the condition is recognized and properly treated at once.

Case III. A strong, healthy woman, thirty-four years of age, gave the following history:

Six years ago, after the birth of the fifth child, began, to have pain in the back referred to the region of the sacrum. At first this was only at night after sleeping, and was then quite severe, making sleep afterward difficult. Later on the pain was produced also by sudden movement or jar. Various measures were tried for the relief of the pain, including prolonged use of uterine supports, but the condition became more troublesome, and three years ago, an operation was performed in which the cervix and the perineum were repaired and the round ligaments shortened, all with absolutely no relief to the pain.

Later another pregnancy started, and the child was born two years ago without difficulty. Following this, any movement in bed, especially trying to sit up, produced marked pain in the sacral region, and it was because of this pain that our advice was asked. It was suggested that during sleep a pillow be placed under the lumbar spine, extending down under the upper portion of the sacrum, and that during the daytime a corset be worn fitted well over the hips. Previous to the use of the pillow the patient had found that the pain could be relieved by turning upon the face. With the use of the pillow and the corset the pain was relieved, and in a few weeks all symptoms of weakness disappeared. There was no further trouble until three months afterward, when in connection with an attack of rheumatism, she was kept in bed for several days upon the back. At this time the old pain returned, due evidently to the flattening of the lumbar spine from the long position in bed, and the consequent dragging back of the upper part of the sacrum. A return to the pillow and the corset at once relieved the symptoms.

Case IV. A woman, thirty-eight years of age, was seen in April, 1904, because of pain referred definitely to the sacro-iliac articulations and the symphysis pubes.

The patient had had three children, the youngest being nine years of age. With both of the last children during pregnancy and following it, there was much disability, walking being practically impossible, and it was several months after the birth of each child that the disability ceased. During this period there was marked indigestion. The looseness of the pelvic articulations was definitely recognised by the patient at that time, and by means of pillows she was able to control in some degree the discomfort. Until the present trouble, which had existed but a few weeks, the patient had been well and strong, fully able to take vigorous exercise without symptoms.

About six weeks before being seen, the patient, who was very "soft" physically and very tired from a winter of much anxiety and nervous strain, began a series of violent exercises, one of which consisted of sitting upon the floor with the legs separated, the knees being straight, and bending forward so that the breast touched the floor between the knees. Another consisted of lying upon the floor, and, with the legs straight, flattening the lumbar spine so that the whole spine, buttocks, knees, and feet touched the floor. It will be seen at once that while the method of accomplishment is different, the effect of these two exercises upon the position of the sacrum is exactly the same as the manipulations which have been previously described, in which the change in the position of the sacrum is definitely desired.

After going on with these exercises for a few days, the mobility of the pelvic articulations which had been present at the pregnancies returned, with much resulting disability. At the time of the examination the abnormal mobility of these articulations was clearly demonstrable.

For treatment, the exercises were discontinued, a support of pillows was arranged for the back at night and a corset was applied, with special steels in the back to hold the upper part of the sacrum forward, and with a wide webbing belt at the base to make lateral pressure over the iliac bones. After four weeks of such treatment the symptoms disappeared, and in performing the ordinary duties of life or in taking ordinary exercise no evidences of weakness were apparent. As a precaution the belt and corset were continued for two months longer.

The condition represents a definite relaxation of all three of the pelvic joints, due to acute strain, in a patient who had previously had a similar trouble associated with pregnancy.

CASE V. Well developed woman, thirty-nine years of age, was seen on the 22d of March of this year, because of troublesome backache with much leg pain which had been present off and on for some years. She had had three children with no special trouble except with the second, at which time there was considerable weakness noted at the symphysis pubis. The bones were said to have "crunched" on movement, and walking at that time was difficult. Ever since the backache was first noted it has been worse at the menstrual period. Two years previous to the time of the first visit an operation was performed for some gynæcological difficulty, and immediately after that, while still in bed, for the first time an attack of what was called sciatica occurred in the right leg. Since then, whenever she is tired, or stands much, the pain in the leg returns, and there have been several periods when the pain has persisted, these periods being spoken of as attacks of sciatica. Two weeks previous to the first examination an attack of this sort started which it was not possible to control with any of the simple drugs. The pain has been almost entirely referred to the right leg.

The examination showed a slender but strongly built woman, complaining of pain referred definitely to the right sacro-iliac articulation, and always developed by pressure or strain which involved the use of that articulation. During the examination the motion at the articulation was definite, and on raising the leg with the knee straight the pain was increased. On standing there was a distinct list of the body to the left, and it was almost impossible for the patient to bear all the weight upon the right leg.

The condition represented weak pelvic articulations, in which, following the profound anesthesia and the position upon the operating table, there had undoubtedly been a partial displacement of the sacrum which was responsible for the sciatica. Since then, because of lack of support, this displacement had recurred.

For treatment, woven elastic trunks were used with almost entire relief of the symptoms, the patient being able to walk about freely. With these a pillow under the back at night is used.

CASE VI. A very large, strongly-built woman, of thirty years of age, was seen for the first time March 25 of this year, giving the history that ever since childhood she had had backache, and that during childhood she was able to find relief by lying down and having her sister sit upon the low part of the back. The pain has increased with age, so that at the present time active exercise has been impossible, and anything which represented strain upon the back, such as much standing or lying down without back support, has caused intense suffering. At times there has been a distinct slip at the low back, so that for the moment it was impossible to move. There has also been some numbness at times in the legs associated with the pain.

In the examination, the woman complained of all the pain in the region of the sacrum. She was very large, the hips unusually so, and all motions or positions in which the sacro-iliac joints were strained caused an increase of the pain, which was of the same character as that from which she had suffered for so many years.

The condition represented a relaxation of the pelvic articulations, the pain undoubtedly all being due to this condition. The pelvic examination which had been made with this patient was negative in its result

Because of the large hips and the hollow over the sacrum, a sacral brace was applied, which gave almost immediate relief during the daytime, but the pain at night was not relieved until the woven elastic trunks were applied, which, together with the pillow under the hollow of the back relieved the symptoms. In this case, because of the weight of the patient and the long continued weakness, it will undoubtedly be necessary to use the supports for many months.

CASE VII. A woman, forty years of age, was seen in consultation with Dr. P. C. Edson March 3, 1905, because of severe back and leg pains associated with much disability.

The history is as follows: She has had two children, and each labor was difficult, but there was no trouble afterwards. The first symptoms referred to the back began four years ago. At that time she had a severe attack of pain in the lower part of the back, chiefly upon the right side. The pain at times was intense, and varied with position and use. She was several weeks in bed, and then the attack gradually passed so that she was much better in from ten to twelve weeks. The lameness in the right leg, however, has never entirely disappeared. Two years ago after a long walk the pain returned in all its intensity, and confinement to bed was necessary for between eight and ten weeks. The pain was present on motion, and at night, after sleep, was very severe, this being localized in the right hip and leg.

On last Christmas Day the patient danced a little. This was followed by a return of the pain in the right hip, and she has been miserable ever since. She has tried to keep about, but walking has been difficult, it being necessary to drag the legs along. Going over the stairs or taking a step up has been very hard. After sitting for some time, or after lying down, it has been very hard to rise, and on attempting to lie down it has frequently been neccessary to have the legs raised to the bed or couch.

The general health has been good. There has been no other joint lesion and no signs of paralysis. The menstruation has been regular, but at such times the back and leg pain has been worse.

The examination showed a stout woman complaining at the time of backache referred definitely to the sacral region. From here the pain extended to the right leg. The spinal motions were fairly free, but upon forward bending when standing, the body was straightened with difficulty. Bending to the left caused definite pain in the right hip. There was tenderness over the sacro-iliac articulations, but none over the symphysis. The motions of the sacrum were abnormally free.

The hip motions with the knee flexed were normal and without pain. With the knee straight, flexion of the left leg was not possible beyond 40°, while in the right 60° was possible. When this limit was reached the pain extending down the leg became severe.

The condition represented a definite relaxation of the sacro-iliac articulations, with possibly an hypertrophic arthritic lesion superimposed.

For treatment, the sacral brace was fitted, and while this gave some relief, there was still so much pain, that considering weight and the size of the body about the buttocks, it was thought wise to put the patient

to bed in order to relieve the joints from as much strain as possible. Accordingly, a pair of elastic trunks was applied and the patient put to bed flat upon the back with a firm pad under the sacrum and a pillow under the lumbar spine. A pillow was also placed under the knees to relieve the tension of the hamstring muscles.

For two days there was considerable pain and discomfort, but after that it ceased, and with the cessation the muscular spasm disappeared, so that the legs needed no support. After two weeks in bed the patient was allowed up for short intervals with the sacral brace and the webbing trunks applied. As the strength returned the amount of exercise was increased.

In such a case the bed treatment to support the bones and relieve the joints from strain is undoubtedly desirable in the beginning, as in stout persons it is not possible to apply pressure to the hip and pelvis definitely enough to prevent abnormal motion. After two or three weeks of recumbency, unless there is some active disease, it should be safe to allow the patient to get up with the support, provided there are definite rest periods of lying down at frequent intervals during the day.

Case VIII. A young woman, twenty-one years of age, and a student at college, was seen first on January 4 of this year, complaining of backache of six months' duration.

No cause was assigned for the trouble, except that she was very tired as the result of her college work. The pain or backache was worse upon long sitting, lying down or standing. Walking did not cause trouble unless carried to the point of fatigue. The discomfort at night was enough to keep her awake. No connection between the symptoms and the menstrual period had been noted.

The examination showed a slender girl of poor muscular tone. On standing or sitting the attitude was bad, the lumbar spine being curved backward rather than forward, the thickening of the skin over the spinous processes under the corsets showing plainly that the attitude was of long duration.

The spine was flexible, and also the hip motions, except leg raising with the knees straight. The backache and the night pain was localized definitely to the sacro-iliac articulations, both being involved. There was distinct tenderness over these joints and also over the symphysis pubes. The motion in the pelvic joints was abnormally free, and when the pelvis was gripped firmly in both hands during the examination the patient exclaimed that it felt good.

The case represented an over-tired girl, with muscles very much relaxed, the pelvic condition representing apparently part of the general relaxation.

For treatment, the patient was taken out of college, and by means of tonics, with periods of both rest and exercise, everything done to improve her general health. For the local treatment, a sacral brace was applied.

On March 30, 1905, the patient reported in much better general condition, complaining of almost no backache. The muscles were much firmer and the pelvic mobility was distinctly less. Patient was advised to continue with all the treatment including the brace for at least two months longer.

Case IX. A young woman, twenty-four years of age, for over a year previous to being seen, had pain referred to the back of the right hip which interfered seriously with walking, so that for a year she had been unable to work. Sitting was painful, and most of the time was spent lying down. Because of this pain and disability two operations were performed in that year, one suturing a loose kidney in place, the other the removal of the appendix and the right ovary. Neither operation changed the character of the pain in the least.

At the time of the first examination the pain was referred definitely to the right sacro-iliac articulation, with no other symptoms except as this joint was strained or moved.

For treatment, after some experimentation, a spring steel brace was applied, bent sharply forward in the lower part, and with this, which was worn for several months, the condition was relieved.

The condition represents a definite weakness of the right sacro-iliac articulation, not due so far as it has been possible to determine to any disease, and not associated with pregnancy, starting probably with the relaxation of these articulations in menstruation.

Case X. A strong, healthy man, while lifting a patient, felt something give way in the lower part of the back. The pain was quite severe, and this was not only referred to the lower back, but extended down the legs. The body was drawn forward and there was quite a perceptible tremor of the legs.

After some effort the body was straightened and with this change of position the pain was partially relieved.

The condition was not at the time recognized, but the patient, who was a physician, carefully guarded the motions which caused strain upon the lower back and sacrum, and in this, not only was the pain relieved, but the strain of the joint was gradually overcome. After about one month of guarded use the symptoms ceased and there has been no further trouble.

The condition represents an acute sprain of the sacro-iliac articulations, the so-called "stitch in the back," and the position of the body together with the pain in the legs was due to the slipping of the sacrum out of its normal position.

Case XI. A man fifty-one years of age was seen in the Orthopedic Department of the Massachusetts General Hospital, because of pain in the lower back, with much disability.

The history was that fifteen years before, when working at his trade of steam fitting, he strained his back, and after that, when lifting or doing any heavy work, he had pain always referred to the sacral region. There had been several acute attacks of pain when all of the symptoms were worse, and with these there was a gradual increase of the trouble. The back gradually grew stiff so that stooping has been difficult for some time.

The examination showed a man of fair development, standing fairly straight, but with the anterior curve of the lumbar spine obliterated. Motions, such as forward and side bending, were limited, but the side bending to the right was less limited than to the left. The motions were practically the same, whether standing with the knees straight or sitting with the knees flexed, and all of these motions increased the pain which was referred to the region of the sacrum. The hip motions were free, but raising the legs with the knees straight was much limited and caused a marked increase of pain which extended down the legs.

The condition represented probably in the beginning a sprain of the sacro-iliac articulations with, as the result of the constant use and repeated strains, the development of an hypertrophic arthritic process, which had also involved the spine and explained the limitation of motion in that region.

For treatment, the patient was much relieved by a low-fitting jacket, but in such a condition this must be continued for many months.

Case XII. A man, thirty-four years of age, and a shoe cutter by trade, was first seen at the request of Dr. J. F. Young of Newburyport, Dec. 19, 1904, because of severe pain in left leg and back, of nine months' duration.

The pain came on after an attack of grippe, at which time he was confined to the house for three days. At first the pain in the leg was referred indefinitely to the left knee and varied in intensity, never being bad enough to keep him from work until two weeks ago, when a sharp pain developed, "shooting" down the leg. At the same time the body was drawn to one side. During the few days previous to the examination the pain had been excruciating both night and day.

At the time of the examination the body was drawn quite sharply to the right with some inclination forward. Motions of the spine were practically impossible in forward or back bending, but lateral bending was relatively quite free. The only position that was possible in lying down was upon the right side. There was tenderness over both sacro-iliac articulations, and anything that caused strain upon these joints produced acute pain.

The condition apparently represented disease of the sacro-iliac articulations with partial subluxation of the sacrum upon one side explaining the attitude and the intense pain.

For treatment the patient was put upon the frame used for hyperextending the spine in Pott's disease, the steels being curved well forward so as to make firm pressure upon the upper part of the sacrum. At first the pain was intense, but in a few moments the legs straightened out, the patient relaxed, and he exclaimed to his friend that the pain had gone. In this position, the sacrum having been forced into place by the body weight, a plaster of Paris jacket was applied.

The patient remained fairly comfortable for about ten days, after which, as the jacket softened, the pain recurred together with the subluxation.

Ether was now given to full anesthesia, and while the body sagged between two tables redressing pressure was exerted over the articulations, the deviation corrected, and a tight low jacket applied. Complete relief resulted, and recumbency was maintained for ten days. A model was then taken in the same manner, but without an anesthetic, and the patient left the hospital wearing a leather jacket made from this and reinforced with steels.

When seen one month later he was planning to return to work, though occasionally there was slight return of the leg pain in walking. With the jacket on he could assume any position in lying down without pain or discomfort.

When last seen on May 18, he had been working two months and all subjective symptoms had disappeared. He was still wearing the leather jacket, but the back motions had markedly improved.

The case undoubtedly represents one of some form of arthritis, probably an hypertrophic arthritis involving the lumbar spine and sacro-iliac articulation, with, in the acute attack, a definite subluxation of the sacrum.

CASE XIII. A man, thirty-five years of age, who had been previously well, was seen at the Massachusetts General Hospital in consultation with Dr. W. W. Gannett. Two weeks previous to the consultation he had had an attack of rheumatism (infectious arthritis) which had affected one elbow, both knees and several of the other joints. Shortly after admission to the hospital, pain developed in one hip and leg, so that moving about in bed or standing was difficult.

On examination the exposed joints showed the characteristic appearances of a mild infectious arthritis, and the right sacro-iliac articulation was swollen and tender, the pain being increased by any motion which represented strain upon that joint.

The condition represented a general infectious arthritis with the right sacro-iliac articulation involved in connection with the other joints.

The general treatment, together with the support of the back so that the sacro-iliac joint could not be strained, was followed by rapid recovery, the sacro-iliac articulation being ready for use as soon as were the other joints.

CASE XIV. A boy, twelve years of age, was seen Nov. 30, 1904, in consultation with Dr. W. N. Swift of New Bedford, giving the following history:

The boy, who had previously been well, without known cause developed an attack of what was called sciatic rheumatism, nine months ago. This consisted of severe pain extending up and down the back of the legs and buttocks. The pain fluctuated considerably, being much worse at times than at others. The child was kept in bed for eight weeks. There was then a gradual improvement, although the sensations in the legs recurred at times. Three months previous to the examination in November, the lumbar spine was noted to be prominent, and supposing this to be Pott's disease, a jacket was applied with the child lying upon a hammock. This did not relieve the pain, but rather increased it, and associated with this there was a marked tremor of the legs. At the time of the examination the lumbar spine was distinctly more prominent, but there was no rigidity. There was slight psoas contraction on one side, but nothing aside from this to indicate bone disease. The knee reflexes were slightly increased, but there was no clonus or Babinski or other evidence of paralysis.

A plaster of Paris jacket was applied with the spine considerably hyperextended, and this was followed by an almost immediate relief of the pain, so that the child was able to be about and play with the other children.

He was seen again two months later, and at that time the sacro-iliac articulations were more carefully examined, showing tenderness and increase of the leg pain whenever these joints were strained.

The condition represents a strain or some non-inflammatory lesion in the sacro-iliac articulations, the symptoms undoubtedly being due to malposition of the sacrum with the consequent pressure upon the nerves. The prominence of the lumbar spine was simply a part of the deformity previously described in connection with the sacral displacements.

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Clinical Department.

A CASE OF HEMORRHAGIC DISEASE OF THE NEWBORN.

BY CHARLES W. TOWNSEND, M.D., BOSTON.

THE following case of hemorrhagic disease of the newborn seems worth recording on account of the severity of the symptoms in a case that recovered, and on account of the interest attaching to the therapeutic use of gelatin.

A. B., a male infant weighing ten pounds, was born on Dec. 25, 1904, in the most favorable surrounding and with good inheritance. The labor had been short, the delivery easy with low forceps. A slight ecchymosis was noticed at birth on the middle finger of the right hand. On the following day the baby cried considerably and vomited some bloody mucus. An ecchymosis appeared under the chin and on the back of the neck. On the third day several more hemorrhagic spots appeared and when the child was sixty hours old copious bleeding began from the base of the cord at the navel. At this same time also is passed a large, tarry stool made up of decomposed blood, it vomited fresh blood, bled slightly from the nose and from a minute scratch on the scrotum, and several more ecchymoses appeared on the body. The temperature was 101°. The child now presented a desperate appearance, and the outlook was of the very worst.

Nitrate of silver in the solid stick was applied to the bleeding points at the navel, and styptic iron was also used. Both had only a temporary effect, and the blood soon poured out again through the black clots. Continuous pressure with the thumb alone served to stop the bleeding. A heaping teaspoonful of gelatin dissolved in an ounce and a half of water was then given to the infant from a bottle, and was eagerly taken, and a 1 to 1,000 solution of adrenalin was applied to the navel. Pressure with the thumb was kept up from time to time. The same amount of gelatin was given twice more at intervals of two hours. The bleeding at the navel ceased after two hours, no more ecchymotic spots appeared, the bleeding from the nose and from the stomach did not recur, and at the end of twelve hours, after several tarry stools, a movement of normal color was passed. The temperature at this time had fallen to 99.6° and after this became normal. Recovery was uninterrupted and the subsequent career of the infant has been normal.

Hemorrhagic disease of the newborn is generally admitted to be an infectious, self-limited disease, tending to death or recovery in a few days, and generally, as in this case, accompanied with fever. Where the hemorrhages are so profuse and occur from so many different tissues the outlook is generally bad. How much of the good result can be attributed to the gelatin, it is impossible to say, but the prompt recovery after its use is certainly suggestive. The benefit from the local use of adrenalin is also worth noting.

Medical Progress.

PROGRESS IN GASTRO-INTESTINAL DISEASES.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

THE PATHOLOGY OF GASTRIC CANCER.

Tabora[1] reviews the cases of gastric cancer in the late Professor Riegel's Clinic at Giessen in an instructive manner. We recommend those especially interested in this subject to read the entire article. His opinions are based on a study of 212 cases treated in the hospital during the last five years, and of some others seen transitorily. These cases came under observation as a rule at an unusually early stage on account of the influence of Riegel.

[1] Deut. Med. Woch., 1905, p. 576.

Most textbooks describe gastric cancer under one type — the pyloric cancer. Tumor, dilatation, absence of hydrochloric acid, presence of lactic acid, coffee grounds vomit, continual loss of weight and cachexia are the symptoms portrayed, and are so typical that the diagnosis is made by the laity. But only an early diagnosis gives a therapeutic chance, and to arrive at such it must be remembered that gastric cancer presents a picture in its early stages which is definite, and depends strictly upon its location.

Two clinical types are to be distinguished — pyloric cancer and cancer of the lesser curvature. Contrary to the old view cancer is as common in the latter as in the former situation, and its characteristic symptomatology demands recognition.

The symptoms of pyloric cancer also vary according to the mode of origin, whether it forms on the base of a simple ulcer or is primary. The carcinomatous ulcer is accompanied frequently from beginning to end with hyperacidity, continuous or alimentary hypersecretion. Late if ever is there diminution in the acidity. Motor insufficiency develops early, while lactic acid appears late if at all. Pain is as a rule severe, and it is in this form of cancer that hemorrhage is most frequently profuse.

The primary pyloric cancer, on the other hand, often presents but slight motor insufficiency at the start, but this seldom wholly fails. Free hydrochloric acid falls slowly and gradually as is shown by weekly tests. A relative acid insufficiency is present, which Gluzinski showed was an important sign of beginning cancer. He demonstrated this by testing the stomach "fasting"; again, after an albumin test breakfast (two hard boiled, finely divided eggs and 100–200 cc. water); and third, after a test midday meal, all given on the same day. If hydrochloric acid was absent one or more times it was suggestive. Tabora considers this test most helpful. The test is less valuable for the ulcer type of cancer, because there hypersecretion is often present. The positive result of the test, therefore, speaks for cancer, but the negative is not against cancer. Slowness of secretion of hydrochloric acid is often manifest, and constitutes another peculiarity of gastric cancer, though not of so much value as the relative insufficiency of Gluzinski. The acid may form during the night, and so be found in the fasting stomach, and yet be absent even for one or two hours after a test meal. On account of the motor insufficiency and disturbed secretion lactic acid is formed. Hemorrhages are frequent, but less profuse than in carcinomatous ulcer and of the coffee ground variety. Pain is less severe, a palpable tumor fails generally at the start, which is the opposite of carcinomatous ulcer, in which a clear resistance in the pyloric region is more common. This is due to the infiltrated margin of the ulcer, the adhesions and pyloric spasm. In both forms of pyloric cancer early loss of weight occurs on account of the early disturbance of motility, but cachexia may fail, especially in carcinomatous ulcer.

Though it may be impossible to differentiate

between an ulcer and a cancer at the pylorus, in very many cases it is possible to distinguish between a beginning carcinomatous ulcer and a primary cancer of the pylorus. Hypersecretion, whether continuous or alimentary, is almost pathognomic of the former. In the late stages when the hydrochloric acid has decreased, separation may be difficult. A positive history of ulcer is of value, but a negative history is not, because it is so common for ulcer at the pylorus to be latent. The similarity of the symptoms in ulcer and carcinomatous ulcer at the pylorus is due to the similarity of the histological structure of the pylorus in the two conditions. (Boekelman.) The hydrochloric acid secreting cells are increased in both conditions. In a primary pyloric cancer they are as a rule diminished.

Cancer of the lesser curvature of the stomach is most difficult to diagnose. In the majority of instances it is primary, accompanied with achylia from the start and the motility is intact. By the progress of the growth the stomach may become rigid, and peristalsis be lost though tonic contraction of the stomach remains possible. Finally, motor insufficiency may supervene, but with it the almost paradoxical condition of pyloric insufficiency due to the rigid pyloric ring. This is demonstrated by distention of the stomach with air. Lactic acid formation is more frequent than in pyloric cancer, but is by no means an early symptom. A tumor is only to be felt where the lesser curvature is low enough to permit palpation. Hemorrhages occur early and in small quantity. The subjective symptoms are mild. Pain is rare. Pressure and nausea are for a long time the only complaints of the patient, and are no more severe than met with in many forms of chronic gastritis and nervous dyspepsia. Loss of weight is slight, and cachexia waits for it. Tabora has known such cases to live even three or four years after the diagnosis was made.

The explanation of the disturbance in secretion in gastric cancer is based on two theories, a pathologic-anatomical and a chemical. The first attributes the achylia to a mucous gastritis; by the chemical theory the hydrochloric acid is secreted, but unites with the cancer or the products of the cancer. Tabora considers both responsible for the absence of hydrochloric acid. In cancer of the lesser curvature neither theory would apply, for often this develops when gastritis can be excluded and ulceration of the growth fails. In such instances the cancer appears to have developed in the course of an achylia gastrica, and there is no reason why this should not take place because achylia is so common. It is not improbable, however, that the achylia predisposes to cancer since the achylia is an expression of a weak stomach, constitutional or acquired, and it is a common observation that the mucous membrane in achylia gastrica is vulnerable. But why should the lesser curvature be especially disposed to cancer in achylia? According to the mechanical theory of the origin of cancer, those parts of the body which are most exposed to injury by their position, arrangement or function are most prone to develop cancer. In the stomach two portions are so exposed, the pylorus and the lesser curvature. In the hyperacid or normal stomach the pylorus opens only at intervals when a certain grade of acidity is reached, and the food collects near it and here exercises its chemical and mechanical irritation. This explains why cancer may develop not only at the pylorus, but also in the prepyloric portion. The case is different in the achylic stomach. In it the pylorus is an open door and the food is known to leave the stomach more quickly than normal. The pylorus remains little disturbed, but the lesser curvature, which we now know to be almost perpendicular in the erect position, is subject to continued irritation, and on account of its rich blood supply offers a good field for the development of cancer. In a normal stomach, to be sure, the lesser curvature suffers as much, but the pyloric portion suffers still more. The place of predilection in the achylic stomach is therefore the lesser curvature, in the normal stomach the pylorus. Achylia in cancer of the lesser curvature is not a result of the cancer, and so this symptom in these cases loses much of its importance.

Lactic acid depends on hyperacidity and stasis simultaneously. It is most common in the secondary anacidity of pyloric cancer, but also met with in cancer of the lesser curvature. This is because in the latter instance a slight stagnation can take place in the folds and recesses of the cancer. It is only of value when present; it is not an early symptom; it is not pathognomic. Tabora mentions two cases of simple achylia in which it was present, but in these cases 40 cm., 60 cm., 80 cm. were present one hour after a test breakfast, just as one would expect in a healthy secreting stomach, but a condition which is seldom found in achylia.

Coffee ground vomitus or washings do not always mean the presence of blood. Therefore always control macroscopic with other blood tests. Blood clots are: (1) Large, clumpy and in balls, black, red, size of pin to cherry. (2) Brownish color and striped appearance. (3) Very small, less than head of pin of intense black color, seen with difficulty, and their character recognized only under the microscope.

These tiny clots are never found in simple achylia, because they would not have time to form. This last type is the earliest sign of cancer of the lesser curvature, especially if in combination with the lactic acid bacillus, even if no lactic acid is present, because this shows stagnation in some portion of the stomach must have taken place — that is presumably in the cancer.

It is commonly considered that cancer produces a progressive loss in weight. In Tabora's experience this applies in general only to those forms with motor insufficiency. The typical cancer of the lesser curvature in the early stages causes no notable loss of weight; months, even years passing without harm to the general nutrition. It frequently happens that in the early, middle and sometimes even in the advanced stages, by

forced diet a gain in weight is produced. The variation in weight, therefore, should not have too much influence in the diagnosis of cancer.

Bear in mind that in the early stages of ulcer and cancer of the pylorus, no definite diagnostic signs are known between ulcer and cancer, and it is well to consider the possibility early of cancer. In primary cancer of the pylorus the diagnosis is more easily reached in the early stages. Such a cancer offers the best chance for a real radical removal. But even when in doubt as to the presence of carcinomatous ulcer of the pylorus, operation is desirable because of the dangers from cicatrices and profuse hemorrhages due to the ulcer, even apart from the ever-present predisposition to the development of cancer upon the ulcer. Where resection is not possible, gastro-enterostomy, in Tabora's experience, notably slows the growth of the cancer.

The conditions are far more unfavorable in cancer of the lesser curvature. An early diagnosis is not possible, since the earliest signs and symptoms only occur when the disease is well advanced. On account of the situation of the cancer, its removal scarcely ever succeeds, though the conditions are somewhat more favorable when a gastroptosis is co-existent. Gastro-enterostomy is not indicated because motor insufficiency is absent. Therefore a cancer of the lesser curvature presents little that is hopeful for the surgeon. In Krönlein's clinic of 264 cases of cancer an exploratory laparotomy was undertaken in 197. In only 50 of these cases was the removal of the tumor attempted. Of this number 14 died from the operation, and the remaining 36, that is one sixth of all the cases operated upon, lived on an average fourteen months longer than the 67 in whom any attempt at operation was given up on account of their poor condition. Patients in whom the cancer is situated favorably can live for years, and it is a question whether one has a right to speak of an actual prolongation of life in the above 36 instances.

The possibility of radical removal at the most is not above 1%, and the operative mortality reaches the same height. Besides, there is the psychical moment. To persuade patients to be operated upon who have unimportant complaints, one must direct their attention to the possibility of cancer. When, as is the rule in such instances, the exploratory laparotomy is resultless, and the old complaints return, it is no longer possible to divert the patient's mind from the certainty of the hopelessness of their disease. Furthermore, the knowledge of the recurrence of cancer is widespread among the laity. Tabora has seen more than one case which has lived months and even years after an operation which accomplished nothing, but brought the patient severe mental suffering.

If free hydrochloric acid is shown with Congo paper in a patient suspected with cancer, and there is motor insufficiency, radical removal of the cancer is still possible, at any rate gastro-enterostomy is indicated.

If with motor insufficiency the Congo reaction for free hydrochloric acid is negative, as a rule gastro-enterostomy to offset the motor insufficiency is alone possible.

If there is neither free hydrochloric acid nor motor insufficiency, and the lesser curvature is in the normal position, then any surgical interference is hopeless and purposeless.

A general indication for surgical interference sometimes occurs without reference to the above criteria, when very severe pain makes the life of the patient so unendurable that by operation there is nothing to lose, and yet possibly something to gain.

CIRRHOSIS OF THE LIVER.

Professor Naunyn[1] recently contributed a paper on Cirrhosis of the Liver at the meeting of the German Pathological Association in Breslau. Cirrhosis of the liver occurs in such varied forms that it is often difficult to recognize any similarity between the different varieties. Contrast the patient with atrophic cirrhosis who presents only a latent ascites without jaundice, with liver and spleen recognized only with difficulty, or normal, with the picture of a typical biliary hypertrophic cirrhosis showing bronzed jaundice, giant liver and spleen, and yet no ascites. It is a compliment to the clinicians that they have trusted pathology and believed in the unity of these various processes.

Much help was expected from functional diagnosis in the study of hepatic disease, but thus far levulosuria remains the only reliable test. Moreover, it is possible that the collateral circulation in cirrhosis is accountable for the levulosuria, because in this way a portion of the levulose when absorbed reaches the general circulation without passing through the liver.

The symptoms of cirrhosis of the liver are few, namely, changes in the size of liver and spleen, as manifested by palpation and percussion, ascites, digestive disturbances and jaundice. These symptoms vary in intensity as do symptoms in any disease, but it is characteristic of cirrhosis that one or the other stands out prominently to the occlusion of all others. Naunyn classifies cirrhosis in four groups:

(1) Incipient Cirrhosis of the liver; (2) common ascitic cirrhosis; (3) biliary cirrhosis; (4) hypersplenic cirrhosis.

Incipient cirrhosis is a necessary form clinically. It comprises many alcoholic cases with gastro-intestinal dyspepsia, subjective sensitiveness of the liver, and a liver little or not at all enlarged, often felt only at the end of repeated examinations, of hard consistency, and not tender like the congested liver. The spleen may be enlarged by percussion. It is often felt only after many vain efforts. Jaundice is seldom marked, is usually absent, and ascites is either absent or doubtful. Such cases explain Leichtenstern's precirrhotic splenic tumor. One should not assume that the spleen is affected first, because on repeated efforts the liver can usually be felt and is then characteristically hard. Even if the

[1] Verhand. d. Deut. Pathol. Gesell., September, 1904.

liver is not felt, it only shows that it is not enlarged, but not that it is healthy.

Naunyn thinks the terms ascitic and biliary perfectly characteristic for the next two forms of cirrhosis. In 160 clinically observed cases of cirrhosis there were 34 (21%) with marked ascites (over 3 liters). In these 34 cases there was but one with marked jaundice, while among the whole number of 160 cases there were 13 with marked jaundice. Just as ascites and jaundice exclude one another, so, too, marked enlargement of the liver and jaundice go together. In 160 cases there were 21 with very large livers, and marked jaundice was present in 12 of these. Conversely, an enlarged liver was present in 12 out of 13 cases with marked jaundice.

Though the clinical pictures of the two forms are different, this is no reason to consider the two diseases distinct. The same cause underlies all the different forms. Further between the typical cases one constantly meets transition stages. It is only necessary to refer to those rare cases in which there is a diminution in the size of what was at first a large liver, and also to the many cases of mild jaundice and mild ascites in livers more or less atrophic or hypertrophic. These transition stages are met with still more in the hypersplenic type of cirrhosis. Atrophic and biliary hypertrophic cirrhosis may have the symptoms which make up the clinical picture of Banti's disease. Marked anemia and tendency to hemorrhage are not uncommon in cirrhosis, but they may occur with all forms, and Naunyn does not consider them characteristic of the hypersplenic type.

The spleen is quite constantly enlarged in cirrhosis, and it is seldom that it is not felt. In 66 out of Naunyn's 160 cases it was plainly palpable, and was considered enlarged in 125. Since the spleen is often found enlarged at autopsy when it has not been found enlarged during lifetime, it is probably safe to consider it enlarged in 60% of the cases. It is not as commonly felt in the biliary hypertrophic form as in the ascitic form. Naunyn considers the spleen extra large (hypersplenia) when its longitudinal diameter reaches 20 cm. or more. Such spleens are found more commonly in the biliary hypertrophic type than in the ascitic. It is said to be characteristic of Banti's disease that the spleen is very large, but such giant spleens (30 cm. or over) Naunyn has met with in 8 cases of atrophic cirrhosis, and not one of these cases belonged in Banti's group. In one instance the spleen was 39 cm. in diameter. Perhaps the age of the patient has something to do with the size of the spleen, since large spleens are more common in young people.

Naunyn does not accept Banti's views. The pure case of cirrhosis with hypersplenia Naunyn would call hypersplenic cirrhosis or pseudo Banti's cirrhosis. These cases are characterized by an early appearance of a very marked anemia. The deciding sign is the giant spleen 20 cm. to 30 cm. in length. As a rule in the cases observed by Naunyn the liver was also large, and its anatomical condition similar to that of atrophic or hypertrophic cirrhosis. Ascites appears in some cases just at the end. Hemorrhagic diathesis is frequent. Jaundice is absent or extremely slight. The blood shows anemia. In some cases there is hypo- in others hyper-leucocytosis. Naunyn would restrict Banti's disease to those cases of splenic anemia in which ascites appears later. The ascites in these cases is not due to the cirrhosis of the liver which may be present, since this is not a pure cirrhosis, but rather a freshly formed lymphomatous growth in Glisson's capsule and in the acini, similar to that which occurs in pseudoleukemia. He finds no evidence that pure cirrhosis develops in such a liver. There are no characteristic blood changes in Banti's disease. The diminution of white corpuscles occurs in the plain ascitic form of cirrhosis just as well as in Banti's disease and the pseudo Banti's cirrhosis. A way to differentiate the real Banti's disease from the pseudo Banti's cirrhosis is the toxemic destruction of albumin, which ceases as soon as the spleen is removed. Such toxic albuminous destruction is only found in Banti's disease. The cases of splenic extirpation which result favorably are always cases of Banti's disease.

How can one reconcile the differences in the clinical picture of all these different forms of hepatic disease? In great part they can be referred back to an accompanying cirrhotic cholangitis. It is not uncommon in the course of cirrhosis for attacks to occur which simulate gallstone attacks. These are characterized by sudden, severe pains in the liver region, which stretch out over the abdomen to the back, and may be accompanied by biliary vomiting and fever. The liver becomes sensitive to pressure, very sensitive, begins to swell in the attack, and afterwards diminishes in size. Jaundice may appear or become deeper, to disappear again after the attack. These attacks may be so similar to gallstone colic that they are diagnosed as cholelithiasis, but they have nothing to do with cholelithiasis. Naunyn refers to three cases of cirrhosis in which these typical attacks appeared, and in which the autopsy excluded gallstones. The study of gallstones has taught that attacks like the above are the expression of an infectious inflammation of the gall passages. One should speak clinically of a cirrhotic cholangitis just as of a calculous cholangitis. That in cirrhosis the gall passages are disposed to infectious disease is as obvious as it is probable that in cirrhosis the activity of the bile flow suffers. Numerous clinical and experimental investigations have shown that any disturbance of the bile stream favors the appearance of an infection in the gall passages. Various writers have associated cirrhotic livers with purulent and ulcerative cholangitis. Naunyn has seen one such case, and in his opinion these are much more common than has been thought. Cholangitis occurs without serious atomical changes in the biliary passages. This is easily produced in animals by ligaturing the ductus choledochus, and injecting virulent colon bacilli into the gall bladder. The animal

dies within two days with all the symptoms of a virulent infection, and yet one finds nothing but an enormous and highly virulent quantity of colon bacilli in the bile. The bile passages show nothing more than the desquamation of epithelium and slight hemorrhages, changes which are easily overlooked at autopsy. Nevertheless, this is an infectious cholangitis, and it should always be spoken of as such when large quantities of pathogenic microbes are found during life, or directly after death, in the bile. From the clinical point of view Naunyn believes that cirrhotic cholangitis is a frequent and important complication of cirrhosis, and cites as proof first the attacks simulating gallstone colic, and second the presence of fever in cirrhosis of the liver. Carrington found this in 40% of 44 cases, and Naunyn in 20% of 33 cases. The fever is not high, though it occasionally reaches 104° for periods of a week. It is often unaccompanied by discomfort. In the third place the jaundice in cirrhosis suggests an accompanying cholangitis. It is present in one half of the cases, if those in which it is very slight are included. Its similarity is very great to the jaundice of gallstones, which is due, as a rule, to an accompanying cholangitis. The fact that fever is more common in the severe jaundice cases speaks for the cholangitic nature of the jaundice. Finally, Naunyn believes that the complicating cholangitis is closely related to the enlarging of the liver in the hypertrophic form. Jaundice is more common in this form, and when jaundice appears the liver swells.

The cholangitis above mentioned is a complication of cirrhosis, not its cause. If cholangitis produced cirrhosis then cirrhosis would much more commonly accompany gallstones. Naunyn has never seen a definite case of this kind. It is sometimes mentioned by authors who favor the view that cholangitis is the cause of cirrhosis, that jaundice is present before the cirrhosis appears. This in fact did occur in 15 of Naunyn's cases, and in fact two years before the cirrhosis was diagnosed. However, the course of cirrhosis is usually very chronic, and it is difficult to say that cirrhosis was not present when the jaundice appeared. Furthermore, jaundice is not a precursor of biliary cirrhosis more frequently than of ascitic cirrhosis. Jaundice appeared first in only one of his 13 cases of biliary cirrhosis.

The cause of cirrhosis first of all is alcohol. Of Naunyn's 135 male cases, 83 were steady drinkers, and 18 steady "soakers"; 35 women were constant drinkers. When one considers how frequently, especially with women, the truth is concealed, these facts are striking. Syphilis was present in 19 cases. Typhoid was noted in 13 cases, only 4 of these being drinkers. Malaria was present in 8 cases, and of these 5 were drinkers. Six of the 35 women had 7 to 14 children. No form of cirrhosis has a peculiar etiology. Alcohol precedes one as much as it does the other. Of 13 cases of biliary cirrhosis 8 were drinkers, and of these 4 "soakers." Naunyn cannot explain his biliary forms by infectious disease. The form of alcohol is not essential, and brandy is by no means necessary for a satisfactory etiology. Several cases seem to work together, — alcohol and syphilis.

How does the alcohol act? Directly on the liver, or by way of the blood? Naunyn thinks the liver the seat of the trouble. One can speak of gastro-intestinal cirrhosis since the substances which harm the liver originate in the intestine. Naunyn does not believe in a specific hematogenous cirrhosis, but thinks that the substances in the intestines act upon the liver by the way of the blood. This seems proven because alcohol injected subcutaneously has the same action on the liver as when taken by the mouth. Mertens has produced cirrhosis in rabbits in this way. Hemochromatosis is important in this connection, because Kretz has recently found that hemochromatosis never fails in cirrhotic livers. The view of Kretz appears well founded, namely, that the alcohol causes disease of the red blood corpuscles; these red blood corpuscles then collect in the liver, and are there destroyed, and lead to disease of the liver. A sort of hemolysis takes place. Brauer's experiments agree with this view. Brauer produced albuminocholia and a desquamative cholangitis by acute alcoholic intoxication of animals. It is possible that this alcoholic cholangiolitis comes through alcoholic hemolysis. This would be an example of hematogenous descending cholangitis which could be considered as a cause of cirrhosis, in opposition to the other and ordinary form of cholangitis, which is of an ascending type.

(To be continued.)

Reports of Societies.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT BRANCH OF THE MASSACHUSETTS MEDICAL SOCIETY.

MEETING OF MARCH 8, 1905.

DR. JOHN H. MCCOLLOM read a paper on

THE EXPERIENCE OF NINE YEARS IN THE TREATMENT OF DIPHTHERIA WITH ANTITOXIN.

DISCUSSION.

DR. DAVID W. CHEEVER: I am probably the only person in this hall who was a pupil of Dr. John Ware, now fifty years ago.

The term "membranous croup" which formed the title of his essay, alluded to, was then the only term in use. The name diphtheria came in later.

I remember at our then medical society a cast of the trachea and bronchi, made up of false membrane, being exhibited from the autopsy of an unfortunate young physician who died of membranous croup, while on a hunting expedition in the woods.

Remedies then were calomel, antimony, sulphate of zinc, to loosen the membrane and to expel it by vomiting.

I remember sitting all night by a child with membranous croup, who slowly strangled before my eyes, like the tightening of the Turkish bowstring.

Then came tracheotomy, and he was lucky who

saved one in three — one in four was the common ratio; a mortality after tracheotomy for membranous croup, of 75%. Ether was given for tracheotomy. Many preferred chloroform with justice, as occasioning less struggling. Local anesthesia with cocaine was not perfected. Finally, I came to doing tracheotomy on children without any anesthetic. The venous congestion at the root of the neck, and the stoppage of breathing which often occurred, were thus obviated, and I took the ground that it was safer for the patient, and no more terrifying or cruel, than the ether sponge to a suffocating child.

Next the word diphtheria became common — a word of Greek root, but of French paternity. Finally, it was conceded to cover all forms of membranous croup.

Next came intubation, and it has largely displaced tracheotomy, — no incisions; no anesthetic. But I still think tracheotomy preferable if the patient has to be left over night, or in untrained hands.

Lastly the Klebs-Lœffler bacillus has settled the etiology of diphtheria, or membranous croup; and the antitoxin prepared from the serum of the blood of the germ-injected horse has proved a specific.

Mortality has dropped from 45% and 50% to 7% and 10%; the mortality of laryngeal cases, operated cases, has changed from 75% of deaths to 93% of recoveries.

I am glad I have lived to see this day. All I have said is by way of prelude to the important thing I want to say, and that is to thank Dr. McCollom in the name of humanity, and in the name of the profession.

DR. T. M. ROTCH stated that it might be of some interest to the society to hear the result of the administration of antitoxin at the Children's Hospital and at the Infants' Hospital.

Antitoxin began to be given at the Children's Hospital in May, 1897, and up to the present time 9,696 children have had it given to them as soon as they entered the hospital. It was given to each case whether they were very ill or not and in no case had any harm resulted. Since antitoxin has been given no case of diphtheria has developed in the hospital. The antitoxin is given every three weeks. In one case where by mistake it was omitted the child had diphtheria and this is the only case that has been seen in the hospital since 1897. Various efflorescences of an interesting character appeared after the use of antitoxin, but in no case have they been of any great moment, and in no case as a result has there been any arthralgia and no more discomfort than would arise from an ordinary vaccination.

At the Infants' Hospital the antitoxin was begun in February, 1900. Up to the present time 1,184 infants have received it. No bad results have been noticed and no case of diphtheria has developed in the hospital excepting one where, in 1900, 300 units had been given. Since 1900, 500 units have been given and no case of diphtheria has developed.

While none of the babies have developed diphtheria yet nurses in the same wards have done so and there serve as a control of the general conclusions drawn from the administration of the antitoxin for the nurses, not wishing to have antitoxin given to them did not receive it.

DR. FRANCIS H. WILLIAMS said: It is always a pleasure to me to have an opportunity to congratulate Dr. McCollom on the excellent work he is doing for our community and the profession in the hospital under his direction.

The society will perhaps be interested in the first patient who was given antitoxin in this community, rather more than ten years ago. I had obtained some antitoxin from Behring (this is one of the bottles) and had kept it for some time in the old diphtheria ward at the Boston City Hospital, waiting for a suitable patient. Either a light case or a hopeless case seemed to me unsuitable.

Finally a girl about two and a half years old, who had been ill about two days, was brought into the ward with a malignant form of diphtheria (her sister had just died of the disease). I gave the child antitoxin; on the next day she was no worse, and on the following day she was playing with her dolls and soon was well. This convinced me that there was much good in this new remedy and I have used it ever since, but in the early days it was sometimes necessary to overcome the fears of the family and even of the physician before being allowed to use it.

There are three rules concerning the use of antitoxin, which I stated at a meeting of the Massachusetts Medical Society some years ago, that still hold good I believe:

(1) Get a good antitoxin. (2) Give it early. (3) Give enough of it.

Dr. McCollom has shown us the advantage of giving a sufficient quantity.

EIGHTH ANNUAL MEETING OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.

HELD at the Academy of Medicine, New York City, April 24 and 25, 1905.

FIRST DAY, MONDAY, APRIL 24.

The President, DR. S. J. MELTZER of New York in the chair.

THE PRESIDENT'S ADDRESS: Dr. Meltzer, after referring to certain changes in the constitution, and other matters pertaining to the welfare of the Association, gave a brief biographical sketch of three of its deceased foreign members, namely, Franz Riegel, Samuel Fenwick and Adolf Kussmaul. Kussmaul, who died in May, 1902, of heart failure, at the ripe age of eighty, was undoubtedly one of the greatest clinicians and one of the most accomplished physicians of his time. In him were united the common sense of the practical man with a fine poetical spirit flavored with a delicious humor. He was admired and loved. His scientific contributions extended into nearly every department of medicine, and many of them exerted a deep influence upon the science and practice of the healing art. He was a pioneer in many domains of medicine. He was the first one to describe osteomyelitis, to attempt the construction of an ophthalmoscope, and to develop gastro- and esophagoscopy. He was the first to establish the relation between anemia and convulsions, to point out the significance of coryza in the suckling baby, to describe bulbar paralysis, to describe and analyze diabetic coma, and to introduce the method of thoracocentesis. He was the first to diagnose *intra vitam* embolism of the mesenteric artery, and to describe the diagnostic significance of pulsus paradoxus. His articles on the treatment of the dilatation of the stomach and of peristaltic unrest of the stomach were classical contributions to these subjects.

In speaking of Riegel, Dr. Meltzer said that much of his life work was devoted to diseases of the stomach, in which field he undoubtedly occupied the first rank. It would almost be writing a detailed history of the present state of our knowledge of gastric diseases if he attempted to recount the work of Riegel and his able assistants in this field, and his monograph on diseases of the stomach was certainly a masterpiece.

RECENT ADVANCES IN THE KNOWLEDGE OF THE MOVEMENTS AND INNERVATION OF THE ALIMENTARY CANAL.

Dr. Walter B. Cannon of Boston, Mass.: The speaker said that the three chief mechanical functions concerned in digestion were, (1) the movement of the food through the alimentary canal; (2) the mixture of the food with the digestive juices, and, (3) the exposure of the food to the absorbing mucous membrane. These functions were effected by progressive peristalsis, but the progression of the food through the canal was not uniform. Where digestive juices were lacking, and absorption did not occur, as in the esophagus, the food was moved rapidly: on the other hand, where digestion and absorption could take place, rapid progression was prevented by sphincters.

The recurring peristaltic waves passing over the food through closed sphincters served to mix the food with the digestive juices, as in the stomach, or exposed the food to the absorbing mucosa, as in the ascending colon. In the long course of the small intestine, with no sphincter present to oppose peristalsis, peristaltic activity was infrequent, and the mixing and exposing activities were carried on by a special method, namely, the rhythmic contraction of the circular fibres. These rapidly repeated contractions kneaded the intestinal contents without causing any considerable progression.

The esophagus, as its name implied, was merely a food carrier, serving to transmit nutriment rapidly from one digestive organ to another. It was divided into three parts, a cervical, middle and lower, which contracted in succession after deglutition had begun. The rate of contraction was different in different parts of the human esophagus, and, therefore, in the act of swallowing, the organ underwent three successive sectional contractions, not peristaltic in nature.

It was generally stated that normally the cardiac sphincter of the stomach was in a state of tonic contraction. As long ago as 1860, however, Basslinger described a rhythmic alternation of contraction and relaxation of the cardia, so that fluid streamed from the stomach into the esophagus, even above the level of the heart, then was forced into the stomach again by the peristaltic wave, only to be released a moment later to pour into the esophagus anew.

The stomach was the organ for the storage of food, and also that in which carbohydrate and proteid digestion might occur. These functions of the stomach were performed in different parts of the organ. Undoubtedly, the most important factor of the newer physiology of the mechanism of the stomach was the knowledge that it consisted of two parts, physiologically distinct. The larger, left part of the stomach was the cardiac portion; the right, the pyloric portion. The latter was characterized during digestion by the continuous passage of peristaltic waves over its surface to the pylorus. The cardiac portion was without peristalsis, but as the food was pressed from the pyloric portion into the intestine, the muscles of the fundus, by tonic contraction, squeezed the contents into the more active division, as into a hopper.

The rate of gastric peristalsis varied with different animals. Roux and Balthazard stated that in the human being the rate was about three per minute, and Dr. Cannon said he had been able to confirm this statement by means of auscultation.

Different views had been set forth as to the manner in which the pylorus opened and permitted the exit of food. Some investigators had declared that the sphincter relaxed only at the end of several hours to allow the stomach to empty. Observations with the stomach tube and x-rays showed that the stomach was not emptied at once at the end of gastric digestion, but progressively during the period. There was, then, an intermittent closure of the pylorus. The channel was usually closed, yet occasionally it opened; and when it opened, the peristaltic wave, usually engaged in churning the food, now served to propel it into the intestine.

What agency caused the pyloric sphincter to relax? It seemed probable that the signal for relaxation was the presence of free hydrochloric acid on the stomach side of the pylorus.

The ileo-colic sphincter. — In 1902, Katz and Winkler, and in 1904, Elliott, demonstrated that at the junction of the small and large intestine there was, at least in the dog, cat and rabbit, a distinct sphincter under nervous control, and not a mechanical valve. This sphincter was normally in a state of tonic contraction, and served to keep separate the contents of the small from those of the large intestine. There was some anatomical and histological evidence that also in man the term ileo-cecal valve should be replaced by ileo-colic sphincter, although the physiological evidence of the pesence of this sphincter in human beings had not yet been produced.

Dr. Max Einhorn of New York said that while the explanation given by Dr. Cannon that the signal for the relaxation of the pyloric sphincter was the presence of free hydrochloric acid on the stomach side of the pylorus seemed probable, and would be a satisfactory theory under normal physiological conditions, it did not explain the relaxation of the sphincter in cases, for example, of achylia gastrica, where there was no acid in the stomach, and still the food found an exit into the intestine. There must be other factors that played a part in the relaxation of the pyloric sphincter.

Dr. Cannon, in closing, said he quite agreed with Dr. Einhorn that the influences governing the action of the pylorus were still vague, and that it was necessary to solve the problem from a physiological standpoint before it could be intelligently attacked under pathological conditions.

RECENT ADVANCES IN THE KNOWLEDGE OF THE CHEMICAL PROCESSES OF DIGESTION.

Dr. Lafayette B. Mendel of New Haven, Conn.: The author stated that perhaps the most striking factor of the present development of the study of digestion was the increasing complexity with which the explanation of this function was attended. Yet the unraveling of the details of these inter-related chemical and physiological reactions gave promise of a clear understanding of the *ensemble* of the process termed digestion. From whatever standpoint the chemical processes were reviewed, the enzymes or simple ferments took the most important place among the active agents involved. The question as to their exact chemical nature was still unsolved, but with the increasing attempts to interpret physiological reactions in the light of modern physiological chemistry, instead of the more obscure "vitalistic" conceptions, there was a growing tendency to regard enzymes as special types of catalytic agents, colloidal in nature, which were subject to the general laws applicable to the inorganic catalysers. For the present, however, we were scarcely justified in going further than to direct attention to the marked correspondence between catalysis and enzyme action in respect to the laws of velocity of reaction, temperature, and dependence upon external influences. The so-called reversible action of enzymes deserved special notice, since it threw new light upon the synthetic process in the organism. The researches of recent years had taught us that enzymes co-operated in the alimentary digestive process under conditions which had heretofore not been appreciated, and we had learned to recognize the existence of entirely new types of soluble ferments.

The most important contribution of the last decade to the physiology of digestion lay in the newer conception of the mechanism and chemical regulation of the secretions, and the correlation of the various organs engaged in this part of nutrition. The activity of the salinary glands was excited reflexly, according to the nature of the food present in the mouth. The mucous membranes were not indifferent to the composition of the ingested substances, and they seemed to act as though endowed with discriminative sensibilities for the different food-stuffs.

THE F. A. HOFFMANN-OSTWALD METHOD OF DETERMINING THE FREE HYDROCHLORIC ACID OF GASTRIC JUICE BY DISSOCIATION OF METHYL ACETATE.

DR. JOHN C. HEMMETER of Baltimore illustrated this method, and read a short paper on the subject.

THE IMMEDIATE EFFECT OF BILIARY RETENTION ON THE GASTRIC SECRETION.

DR. JULIUS FRIEDENWALD of Baltimore, Md. (read by DR. H. W. BETTMANN): The author stated that from his own observations, as well as those of Simnitzky, he felt justified in concluding that in conditions of biliary retention there was a marked tendency to an increase in the secretion of hydrochloric acid in the stomach. This was probably due, as Simnitzky had pointed out, to the diseased or asthenic state of the secretory cells of the stomach, due to poisoning with biliary products. The fact that one digestive secretion exerted a marked influence upon another secretion had been well known for a long time. It was a well-known fact that all forms of intoxication of the system could markedly influence the gastric secretion, and change its character. The cholemic condition due to biliary retention was much like the uremic condition due to ligation of the ureter, in which marked disturbances of the gastric secretion were known to take place.

The first really systematic examination in this regard was made by Simnitzky. He investigated, especially, cases of catarrhal jaundice, because in that disease the jaundice gradually increased and then gradually again diminished. Beginning the examinations early, and continuing them as the jaundice intensified and as it again diminished, the direct effect of the jaundice upon the gastric secretion could be observed. As a result of careful investigation he found that in those cases in which there was at first a complete biliary retention, which gradually began to clear up, the total acidity, as well as the percentage of free hydrochloric acid, gradually diminished, and that with the retention of the bile, the gastric acidity increased in proportion to the degree of the biliary retention, the increase in acidity being due mainly to free hydrochloric acid.

DR. A. L. BENEDICT of Buffalo said he had seen quite a number of cases in which there was a decrease of hyperchlorhydria, and which subsequently proved to be cases of biliary obstruction.

DR. EINHORN said he had seen cases of jaundice and hypertrophic cirrhosis of the liver in which there was no evidence of an increase of hydrochloric acid, but rather a diminution.

ARE THE MILK COAGULATING AND THE PROTEOLYTIC EFFECTS OF THE GASTRIC JUICE DUE TO ONE AND THE SAME, OR TO TWO DIFFERENT ENZYMES?

DR. JOHN C. HEMMETER of Baltimore read a paper on this subject, in which he discussed the various theories that had been advanced.

(To be continued.)

Recent Literature.

Conservative Gynecology and Electro-Therapeutics. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. BETTON MASSEY, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia, Fellow and Ex-President of the American Electro-Therapeutic Association, etc. Fourth edition. 24 plates and numerous engravings. 467 pages. Philadelphia: F. A. Davis Company. 1905.

This edition, compared with the first edition published in 1889, is disappointing because it contains so much of the matter which has now become obsolete. It is questionable whether the electrical treatment of incipient cancer and extra-uterine pregnancy up to the fourth month, and the electrical puncture of fibroids can now be classed as conservative gynecology.

The controversial tone to be detected throughout the book is to be deprecated in a textbook, and altogether too much space is devoted to combating the claims of surgery in this field.

Part II on the rudiments of medical electricity is well done, and logically should precede Part I, which treats of the many methods of applying electricity. The apparatus is well illustrated and clearly described. The author's method of applying zinc-mercury cataphoresis is given at length and the book is full of helpful directions to the electro-therapeutist.

While being a dangerous guide to treatment, it is a valuable compendium of electro-therapeutical technique.

Railway and Other Accidents, with Relation to Injury and Disease of the Nervous System. By ALLAN MCLANE HAMILTON, M.D., F.R.S.E. 8vo. pp. xiv, 351, with 15 plates, 2 superimposed charts and 36 illustrations. New York: William Wood & Co. 1904.

Inasmuch as injury is ascribed as one of the causes of nearly every disease of the nervous system, it is obvious that any treatise on traumatic nervous diseases, to be complete, must cover nearly the same ground as the ordinary textbook of nervous diseases. Four chapters of this volume are therefore given to a brief and unsatisfactory account of the various diseases of the brain, and peripheral nerves. The opening chapters, however, are devoted to traumatic neurasthenia and hysteria, to which the writer gives the general name of "accident aboulia." The choice of names seems unfortunate because it elevates a single symptom to the rank of a disease, — a symptom, too, which is not always present, — and by the creation of new terms it tends to confuse the minds of the laity, whose ideas are none too clear at the best. Furthermore, the psychical factor in neurasthenic and hysterical conditions has of late been somewhat over-emphasized, and the physical factors, which are sometimes of considerable importance, are unwarrantably neg-

lected. That is the case in the present treatise, where the idea of litigation is given considerable prominence. The majority of the seventy-three cases reported were "litigation" cases, and the author fails to compare these cases with others where there had been no litigation and to establish definitely the influence of litigation in their development. The final chapters deal with prognosis and fraud and contain many valuable personal observations. The work, as a whole, is hardly satisfactory, however. It is, in many places, obscure and fails to give a definite and complete account of the symptoms of many of the affections discussed, while it also fails to take note of very much of the recent work upon the subject.

Lehrbuch der Kinderkrankheiten für Ärzte und Studirende. Von DR. ADOLPH BAGINSKY, a.o., Professor der Kinderheilkunde an der Universität, Berlin, Director des Kaiser- und Kaiserin-Friedrich-Kinderkrankenhauses. Achte völlig neue durchgearbeitete und verbesserte Auflage. Pp. 1214. Leipzig: Verlag von S. Hirzel, 1905.

This latest edition of this well-known work maintains the high standard of its predecessors. It presents very satisfactorily the views of the author and the Berlin school, and for this reason no one interested in pediatrics can afford to be without it. It is especially valuable in the numerous references to literature which it contains. We notice, however, a notable lack of references to the work of American authors with the exception of those with German names. This book, like those of all Continental authors, is very weak on the subject of infant feeding, both in health and disease, and not very strong on the general treatment of disease. The sections on etiology and pathology are the strongest. There are no illustrations.

The Urine and Feces. A Practical Manual on the Urine and Feces in Diagnosis. By OTTO HENSEL, Ph.G., M.D., Bacteriologist to the German Hospital, New York, and RICHARD WEIL, A.M., M.D., Pathologist to the German Hospital, New York, in collaboration with SMITH ELY JELLIFFE, M.D., Ph.D., Instructor in Pharmacology and Therapeutics, Columbia University; Visiting Neurologist City Hospital, New York. In one octavo volume of 334 pages, illustrated with 116 engravings and 10 colored plates. New York and Philadelphia: Lea Brothers & Co. 1905.

The portions of this work that are devoted to the urine, and the chemical and microscopical examination of the feces contain very little that is really new and not already a part of standard and up-to-date works on laboratory diagnosis. The book is, however, valuable in one particular, *viz.*, the portion given up to the bacteriology of the feces. The data found in this chapter are, for the most part, the results of the well-known work of Ford, done largely under the auspices of the Rockefeller Research Fund. Those interested along this line will find the book well worth perusal.

THE BOSTON

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REPORT OF THE NEW YORK STATE CHARITIES AID ASSOCIATION.

THE twelfth annual report of the New York State Charities Aid Association to the State Commission in Lunacy is in our hands. With the unquestioned importance which the care of the insane is more and more coming to have the subject matter of this and similar reports becomes of wide general interest. The curious conservatism which has for so many years prevailed regarding the care of the mentally deficient and the enfeebled is yielding to a rational spirit which before long will place the care of this type of dependents on a plane commensurate with its significance to the community as well as to the individual.

It is a somewhat appalling fact that on Oct. 1, 1904, the total number of insane persons in state hospitals and licensed private asylums was 26,861, being an increase of 927 over the previous year. Statistics show that the total increase of the insane, in both public and private institutions in the state, has averaged 738 a year for the past nine years. When one thinks of the rapidly increasing population of a city like New York, composed of many who have the slenderest means of subsistence and who are working against conditions of poverty and ignorance, it is a fairly good showing that the average increase of the insane is less than 800 a year.

Several matters of legislation affecting the insane came to the front in the year 1904. Among these, perhaps the most important was a bill for the establishment of the reception hospital for the insane, which failed to pass the legislature in 1903, was introduced again in 1904, and, with

some slight modification, finally became a law. This law authorizes the city of New York to acquire a site, to lease this site to the state for the establishment of such a reception hospital. Funds of $300,000 are provided for this purpose. It is to be hoped and expected that the city of New York will do its share toward the establishment of this hospital. Its need has again and again been demonstrated and its feasibility shown by the experience of other communities. It is, therefore, not to be doubted that the public spirit of the city will rise to the occasion and provide for a hospital which should minister to some of the most distressing cases which come before the medical practitioner. As the report says, when such hospitals are established in considerable numbers in various centers of population, one of their most valuable functions will be the clearing away of popular misconception regarding mental disease and thereby permitting patients to receive treatment at a time when they are amenable to it.

An amendment of the insanity law has also been provided for the establishment of a board of alienists for the purpose of examining the insane, idiot, imbecile and epileptic immigrants who reach the port of New York from foreign countries. This matter is recognized as one of increasing difficulty and importance. It is for the good of the state that defective immigrants should be returned to their native countries before they enter New York, but the means of determining incipient mental disease is in general insufficient, and it seems somewhat doubtful whether the state should undertake the discharge of a duty which after all belongs to the Federal Government. One matter is at least clear, and that is that men of the highest degree of training should be given charge of this most difficult work, rendered doubly difficult from the fact that the immigrants are in great measure totally ignorant of the English language. In the opinion of the Charities Aid Association the method governing the state hospitals through a state commission in lunacy is not the best owing to the fact that the commission numbers but three persons,— one a physician, one a lawyer, and one a business man,— although duties are so numerous and arduous that much of interest is left to clerks and subordinates. The complete internal control that this board held was not conducive to the best interests of the institutions. On the other hand it is maintained, we think with reason, that boards of managers, made up of men and women interested in the problems of hospital administration for the insane, are a more efficient means of getting at the real needs of the institution. We are under the impression that a change back to the previous regime of such boards has taken effect since the writing of this report. These, and many other matters which are of more technical interest to those primarily concerned with the care of the dependent insane, are discussed in this report. The wide dissemination of the facts which such publications provide is certainly of advantage in the ultimate solution of one of the most difficult problems which the state has to meet.

A NEW SCIENTIFIC SOCIETY.

ANNOUNCEMENT is made that a new society, to be called the Harvey Society, has been established in New York under the patronage of the New York Academy of Medicine. The society membership is to consist of those engaged in laboratory research in the city, and, as may be judged from this fact, its purpose is the diffusion of scientific knowledge in the fundamental branches of medicine, anatomy, physiology, bacteriology, pathology, pharmacology and physiological and pathological chemistry. The facts gained in this research are to be given to the public by lecturers who are at the same time workers in the subject presented. Each of these lectures, it is hoped, will represent the state of modern knowledge concerning the subject treated, but will be so adapted in presentation that it may be wholly intelligible to an audience composed of members of the general medical profession. A secondary aim is to bring into closer relationship the interest of research workers and those practising medicine. To further this end there are two classes of members, to be known as active and associate members, the first including those who are laboratory workers in the medical sciences in New York, and the second those who are in sympathy with the objects of the society residing in New York, but who are themselves not actively employed in laboratory research. The development of this society is in the hands of a committee of seven, composed of the following representative men of the profession mostly of New York: Drs. Graham Lusk, President; Simon Flexner, Vice-President; George B. Wallace, Secretary; Frederic S. Lee, Treasurer; Christian A. Herter, S. J. Meltzer and E. K. Dunham. The first course of lectures will be given during the winter of 1905–6 at the New York Academy of Medicine.

In spite of the multiplicity of societies, we can

easily see wherein this association should fill a place of value in the medical life of New York and of the country at large. However much the fact may be deplored, it is, nevertheless, apparent that the tendency exists for the so-called scientific branches of medicine to separate themselves more and more from the practical work of the practitioner. It becomes, therefore, a problem of much importance, though not easy to solve, to bring these two branches of medical work into closer relationship to the end that practitioners of medicine may not only realize what is taking place in the laboratories, but also may be given the opportunity to profit by such researches; on the other hand, it should be a benefit to the laboratory worker to be brought into closer relationship with the practitioner in order that he may more definitely realize the problems of practical medicine which are demanding solution, since, after all, the object of research is in great measure utilitarian.

The plan outlined above is no doubt as good a one as could be devised to accomplish these ends, although the lecture as a means of transmitting knowledge is never wholly adequate. If, in the general furtherance of the design, men interested in the various laboratory sides of medicine could be given an opportunity of actually seeing the methods of work in the laboratory themselves, no doubt a more lasting impression would be secured. The general scheme, however, is certainly a most commendable one, and we have no doubt the course of lectures will be attended by large and appreciative audiences.

AILUROPHOBIA AND THE POWER TO BE CONSCIOUS OF THE CAT AS NEAR, WHEN UNSEEN AND UNHEARD.

Having been consulted several years ago by a somewhat hysterical young woman, in whom the fear of cats had become an obsession, Dr. Weir Mitchell was led to inquire further into the matter and to collect evidence as to the power to be conscious of the cat as near, when unseen and unheard. A statement of the evidence collected and the conclusions arrived at was presented in a paper under the title of "Ailurophobia" at the last annual meeting of the Association of American Physicians.[1] Three years ago Dr. Mitchell issued a request for answers to the following questions:

A. (1) Have you any antipathy to cats?

(2) Are you subject to unusual feelings or symptoms in the presence of a cat?

(3) What are these?

(4) Does the presence of a tiger in a menagerie affect you as do cats?

(5) Can you account for your cat fear by anything obvious, as, for example, any incident of childhood?

(6) At what age did you first discover your peculiarity as to cats?

B (1) Are you surely aware of the presence of a cat when it is not in sight, or known to be near?

(2) If yes, give the evidence, your own and that of others as to the fact.

(3) What feelings or symptoms make you sure of the cat's presence?

(4) Is it the cat odor?

(5) How long have you had this peculiarity?

In response he received replies from one hundred and fifty-nine persons in America, England and Germany. About a third of these he regarded as valueless, but the general result afforded evidence of great interest and some indicative hints as to the cause, not so much of cat fear as of the more curious question concerning the ability of certain people to be sure of the neighborhood of unseen cats. He obtained indisputable evidence as to the large number of people in whom the presence of a cat gives rise to a variety of symptoms. As concerning thirty-one persons, Dr. Mitchell obtained evidence enough to make him sure that they could tell when a cat was near, although it was neither seen nor heard. In a considerable number of cases of cat fear it was spoken of as a family peculiarity. Sex appears to have no marked influence, but the extreme symptoms are more frequent in women.

In summing up his paper Dr. Mitchell classifies the persons who suffer from cats thus:

(1) Asthmatics — cat asthma.

(2) Cat fear, with or without sequent, excessive, emotional manifestations and only on sight.

(3) Cat fear. Power to be sure an unseen cat is near. Symptoms same as in Class 2, and apt to be extreme.

(4) Those of the last class can detect the cat by smell, or may sometimes, and not always.

(5) Cases occur in which the consciousness of a cat as present through its smell once existed, but does not now, and yet the ability to detect unseen cats remains.

(6) It is, therefore, likely that the cat emanations may affect the nervous system through the nasal membrane, although unrecognized as odors.

Why these emanations should, if plainly perceived as due to cats, cause certain symptoms in those who dread cats, is readily understood.

The ultimate cause of unreasonable terror of cats, I cannot explain.

To be told that a cat is near when none is in the room, may occasion the same unpleasant consequences as when the cat is present.

[1] American Medicine, May 27, 1905.

It is, perhaps, worthy of note how many of the victims of cat fear declare that even strange cats seem to have an unusual desire to be near them, jump on their laps and follow them.

MEDICAL NOTES.

LOW TYPHOID RATE AT CHICAGO. — The bulletin of Chicago's Health Department for the week ending May 27 congratulates that city upon its present low typhoid death-rate and reviews the great change in this particular since 1891.

In 1891 Chicago had the highest typhoid death-rate of any large city in the world — 17.38 per 10,000 of its population.

In 1905 its typhoid rate is stated as among the lowest — 1.21 per 10,000 for the 147 elapsed days of the year, a reduction of more than 93% from the rate of 1891.

The 1891 rate had a single obvious cause — a sanitary blunder. The 1905 rate is the result of persistent, intelligent sanitary effort.

AMERICAN MEDICAL ASSOCIATION, PORTLAND, ORE., JULY 11–14, 1905. — In order that the trip to the meeting of the American Medical Association at Portland, Ore., this year, may be enjoyed by the largest possible number of physicians and surgeons, and particularly by those whose professional duties make it necessary that the journey be performed in an expeditious manner, a special Overland Limited train has been arranged for, and a special party is being organized to leave Chicago via the Chicago, Union Pacific & Northwestern Line the evening of July 6, to make the trip to Portland surrounded by every luxury that modern travel can provide, upon schedules occupying a little less than seventy hours en route.

Arrangements have been made with the railways for the movement of this special Overland Limited train without any extra charge for the unusual service thus secured.

The round-trip rate, Chicago to Portland and return, is $56.50 and proportionately low rates from other points will be in effect. Tickets can be had via the Chicago & Northwestern and Union Pacific lines. Return trip may be made via Oregon Short Line, Salt Lake City and through Colorado without extra charge, or via the Northern Pacific, Great Northern or Canadian Pacific without extra charge, or via San Francisco and Los Angeles on the payment of $11.00 additional at time of purchase. Sleeping-car rate, Chicago to Portland, for double berth in special train, $14.00. Drawing room, $53.00. Stop-overs will be permitted at and west of Colorado common points, Cheyenne or Trinidad, inclusive, or St. Paul and Minneapolis; and a tour of the Yellowstone Park may be made either via Monida or Livingston at a rate of $49.50 additional, covering the usual tour through the Park, including stage transportation and hotel accommodations.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, May 31, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 30, scarlatina 24, typhoid fever 15, measles 25, tuberculosis 40, smallpox 0.

The death-rate of the reported deaths for the week ending May 31, 1905, was 17.66.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 27, 1905, was 202, against 174 the corresponding week of last year, showing an increase of 28 deaths, and making the death-rate for the week 17.15. Of this number 106 were males and 96 were females; 195 were white and 7 colored; 120 were born in the United States, 73 in foreign countries, and 9 unknown; 55 were of American parentage, 119 of foreign parentage, and 28 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 30 cases and no deaths; scarlatina, 30 cases and 1 death; typhoid fever, 11 cases and 1 death; measles, 25 cases and no deaths; tuberculosis, 40 cases and 29 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 24, whooping cough 1, heart disease 21, bronchitis 2, and marasmus 4. There were 12 deaths from violent causes. The number of children who died under one year was 29; the number under five years, 48. The number of persons who died over sixty years of age was 53. The deaths in public institutions were 56.

The number of cases reported for the week from cerebrospinal meningitis was 9.

Obituary.

H. P. STEARNS, M.D.

DR. HENRY PUTNAM STEARNS died at Hartford, Ct., Saturday, May 27, 1905. He was born at Sutton, Mass., April 18, 1828. On his father's side he was descended from Isaac Sterne who came to America with Governor Winthrop in 1630. His mother's name was Putnam, and among her ancestry was Gen. Israel Putnam (Old Put). He thus came of good old New England

stock on both sides. Dr. Stearns took his A.B. degree at Yale in 1853; among his classmates were Andrew D. White, Wayne McVeagh, Edmund Clarence Stedman and George W. Smalley. He attended medical lectures at Harvard and at Yale, taking an M.D. degree from Yale in 1855. He spent a year at Edinburgh studying his profession and also studied in Paris. On returning to this country he began to practise at Marlboro, Mass., but in 1859 moved to Hartford. In April, 1861, at the breaking out of the Civil War, he offered his services and was appointed surgeon to the First Connecticut Regiment, for three months' service. He was at the first battle of Bull Run and was subsequently appointed brigade surgeon. When mustered out he volunteered again and this appointment was renewed. He was ordered to report to General Grant and was with him at the battles of Fort Henry and Fort Donelson, he was also at the battle of Shiloh.

He was promoted to be medical director of the northern wing of the Army of the Tennessee. At Nashville he converted the public buildings into hospitals and had 11,000 hospital beds and an average of 10,000 patients under his charge. He was mustered out of the service in August, 1865, with the brevet rank of lieutenant-colonel. Returning to Hartford he took up practice again and pursued it with great activity and success until 1874, when he assumed the duties of physician and superintendent of the Hartford Retreat for the Insane, succeeding Dr. John S. Butler. He was one of the early advocates of dispensing with restraint.

Dr. Stearns wrote parts of the surgical history of the War of the Rebellion, "Medical Examinations for Life Insurance," "Mental Diseases," "Insanity: Its Causes and Prevention," and a pamphlet on "Expert Testimony in the Guiteau Trial," in which he took part as an expert. He was lecturer on insanity at the Yale Medical School from 1876 to 1897. He had been president and vice-president of the Hartford Medical Society and president and vice-president of the Connecticut Medical Society. He was a member of the American Medical Association, American Medico-Psychological Association, of which he was at one time president, and an honorary member of the British Medico-Psychological Association, the Boston Medico-Psychological Association and the Vermont Medical Society. He was also a member of the Army and Navy Club of Connecticut and the Military Order of the Loyal Legion of the United States. He had held the office of president of the Yale Medical Alumni Association, physician at Hartford Hospital, medical director of the Travelers Insurance Company, and he belonged to the Connecticut Historical Society, National Geographical Society, Sons of the American Revolution, Society of Colonial Wars and the Connecticut Humane Society.

Dr. Stearns resigned the position of superintendent of the Hartford Retreat March 31, 1905. His was a full, a useful, an honorable career.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 20, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Scarlet Fever	Cerebro-spinal Menin-gitis.
New York	3,906,644	1,577	415	38.35	15.50	2.82	.25	5.64
Chicago	1,990,750	539	155	23.96	11.50	.37	.18	.18
Philadelphia	1,407,986	456	97	36.97	11.84	.65	—	.22
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	549,329	168	54	25.59	13.50	—	—	—
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	409,645	—	—	—	—	—	—	—
Pittsburg	365,403	—	—	—	—	—	—	—
Cincinnati	326,577	—	—	—	—	—	—	—
Milwaukee	325,980	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	70	20	14.30	18.50	1.43	1.43	—
Boston	617,920	198	34	17.67	15.15	—	.50	2.52
Worcester	126,925	41	11	19.51	9.75	—	2.43	2.43
Fall River	119,549	33	17	18.18	21.21	—	—	3.03
Lowell	104,402	34	13	26.25	11.10	—	—	23.73
Cambridge	100,998	18	1	5.55	22.22	—	—	5.55
Lynn	73,875	29	9	24.13	13.79	3.45	—	6.90
Lawrence	72,948	24	7	12.50	29.16	—	4.16	—
Springfield	72,020	14	5	7.14	—	—	—	—
Somerville	70,413	19	4	26.31	15.79	—	—	—
New Bedford	69,963	18	7	11.11	5.55	—	—	—
Holyoke	50,526	19	5	5.26	5.26	—	—	—
Brockton	46,601	11	2	18.18	—	—	—	—
Newton	39,310	4	1	—	—	—	—	—
Haverhill	39,061	17	4	23.53	5.88	—	—	11.76
Malden	37,305	7	2	—	28.60	—	—	—
Salem	37,189	19	3	15.79	—	—	—	—
Chelsea	36,499	13	1	15.40	15.40	—	—	—
Fitchburg	36,235	7	2	14.30	42.90	14.30	—	—
Taunton	34,577	5	0	20.00	—	—	—	20.00
Everett	30,209	7	2	—	—	—	—	—
North Adams	20,201	4	1	—	—	—	—	—
Quincy	25,796	8	2	25.00	12.50	—	—	—
Gloucester	26,121	8	—	—	—	—	—	—
Waltham	25,797	3	—	33.33	—	—	—	—
Brookline	25,576	2	1	50.00	—	—	—	—
Pittsfield	25,570	5	1	20.00	20.00	—	—	—
Medford	24,923	5	—	—	40.00	—	—	—
Chicopee	21,202	9	2	22.22	11.11	—	—	—
Northampton	20,314	10	1	—	—	—	—	—
Beverly	15,207	—	—	—	—	—	—	—
Leominster	15,711	2	—	50.00	—	—	—	—
Clinton	15,294	6	1	—	—	—	—	—
Adams	14,745	2	2	50.00	—	—	—	—
Attleboro	14,261	—	—	—	—	—	—	—
Hyde Park	14,200	1	—	100.00	—	—	—	—
Newburyport	14,078	3	2	—	66.67	—	—	—
Woburn	14,215	4	1	50.00	25.00	—	—	—
Melrose	13,519	2	1	—	—	—	—	—
Westfield	13,209	0	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,666	3	1	—	—	—	—	—
Revere	13,609	7	1	—	14.30	—	—	—
Framingham	13,574	—	—	—	—	—	—	—
Peabody	12,405	—	—	—	—	—	—	—
Gardner	12,234	4	2	25.00	—	25.00	—	—
Southbridge	11,716	7	4	28.60	14.30	14.30	—	—
Watertown	11,575	2	1	—	—	—	—	—
Weymouth	11,250	2	1	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,157; under five years of age, 896; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 771; acute lung diseases 437, consumption 381, scarlet fever 18, whooping cough 27, cerebrospinal meningitis 97, smallpox 3, erysipelas 12, puerperal fever 9, measles 21, typhoid fever 30, diarrheal diseases 125, diphtheria and croup 46.

From whooping cough, New York 8, Chicago 14, Philadelphia 3, Boston 1, Worcester 1. From scarlet fever, New York 13, Chicago 1, Providence 1, Boston 1, Worcester 1, Lawrence 1. From crebrospinal meningitis, New York 73, Chicago 1, Philadelphia 1, Boston 5, Lowell 10, Lynn 2, Haverhill 2, Worcester, Fall River, Cambridge and Taunton 1 each. From erysipelas, New York 9, Chicago 1, Baltimore 1, Haverhill 1. From smallpox, New York 1, Chicago 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending May 13, 1905, the death-rate was 15.0. Deaths reported 4,486; acute diseases of the respiratory organs (London) 112, whooping cough 110, diphtheria 27, measles 174, smallpox 0, scarlet fever 31.

The death-rate ranged from 4.0 in Burton-on-Trent to 23.7 in Warrington; London 14.7, West Ham 12.0, Brighton 16.4,

Southampton 13.6, Plymouth 18.4, Bristol 11.5, Birmingham 17.1, Leicester 14.6, Nottingham 13.3, Birkenhead 13.9, Liverpool 19.5, Wigan 13.5, Bolton 13.8, Manchester 17.8, Salford 15.1, Halifax 18.3, Bradford 13.8, Leeds 16.4, Hull 14.5, Sheffield 21.2, Newcastle-on-Tyne 15.8, Cardiff 14.2, Rhondda 17.5, Merthyr Tydfil 21.9, Oldham 20.8.

METEOROLOGICAL RECORD.

For the week ending May 20, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Direction of wind. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S.. 14	29.97	58	62	50	79	91	S	S W	S W	12	1	O.	R.	.07
M. 15	29.88	54	60	48	91	97	S	E	N E	8	10	O.	R.	.05
T.. 16	29.96	46	50	43	93	96	N	N	N E	10	17	O.	R.	.12
W. 17	30.01	45	47	43	93	93	N	S W	N W	10	10	O.	C.	T.
T.. 18	29.64	50	58	43	92	94	N	N W	N W	7	12	O.	R.	.91
F.. 19	29.58	60	68	53	73	82	W	N W	N W	17	14	C.	F.	0
S.. 20	29.80	59	57	44	48	51	N	W	N W	18	5	C.	C.	0
Avg.	29.82		57	46			81							1.15

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Avg. Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 27, 1905.

F. ANDERSON, medical inspector. Ordered to report to the commanding officer, Marine Barracks, Washington, D. C., for duty at those barracks.

F. J. B. CORDEIRO, surgeon. Ordered to the "Yankee," sailing from New York, N. Y., about June 7.

F. W. E. WIEBER, surgeon. Detached from the "Prairie," when put out of commission, and ordered home to wait orders.

J. D. GATEWOOD, surgeon. Detached from the "Yankee," and ordered home to wait orders.

C. F. STOKES, surgeon. Ordered to additional duty as a member of the Anatomical Board of the District of Columbia.

R. A. WARNER, assistant surgeon. Ordered to the naval hospital, Philadelphia, Pa.

P. R. STALNAKER, assistant surgeon. Ordered to the naval hospital, New York, N. Y.

W. S. PUGH, Jr., assistant surgeon. Detached from the "Prairie," and ordered to the naval station, Guantanamo, Cuba, with additional duty on the "Monongahela," sailing from New York about June 2.

C. T. GRAYSON, assistant surgeon. Detached from the Marine Barracks, Washington, D. C., and ordered to the "Maryland."

R. E. HOYT, assistant surgeon. Detached from the "Texas," and ordered home to wait orders.

H. L. BROWN, assistant surgeon. Detached from the naval station, Guantanamo, Cuba, and ordered to the "Texas."

H. SHAW, assistant surgeon. Detached from the "Yankee," and ordered home to wait orders.

W. J. ZALESKY, assistant. Detached from the Naval Academy and ordered to the "Yankee," sailing from New York, N. Y., June 7.

SOCIETY NOTICE.

AMERICAN ORTHOPEDIC ASSOCIATION. — The nineteenth annual meeting of the American Orthopedic Association will be held in Boston, June 6, 7, 8, 1905. The sessions will be held in Sprague Hall, Boston Medical Library, 8, The Fenway. The sessions begin on Tuesday at 9 A.M., and on Wednesday and Thursday at 10 A.M. On Wednesday there will be a clinical demonstration at the Children's Hospital and on Thursday at the Massachusetts General Hospital at 8 A.M.

JOHN RIDLON, M.D., CHICAGO, *Secretary*.
E. G. BRACKETT, M.D., BOSTON, *President*.

RECENT DEATHS.

DR. IRA P. SMITH, of Bath, N. Y., died on May 26, at the age of sixty-nine years. During the Civil War he served as a regimental surgeon.

EVERETT LARCOM CRESSY, M.D., M.M.S.S., died in Beverly, May 28, 1905.

EDWARD PAYSON DROWN, M.D., M.M.S.S., died in Malden, May 25, 1905, aged thirty-nine years.

RESIGNATION.

DR. EDITH W. CADWALLADER has resigned from the Chair of Obstetrics in the Woman's Medical College of Pennsylvania, the resignation to take effect immediately upon the election of her successor.

BOOKS AND PAMPHLETS RECEIVED.

Hygienic Laboratory. Bulletin No. 21. April, 1905. The Immunity Unit for Standardizing Diphtheria Antitoxin (based on Ehrlich's Normal Serum). Official Standard prepared under the Act approved July 1, 1902. By M. J. Rosenau. Director of the Hygienic Laboratory. Washington.

Report of Working Party No. 2, Yellow Fever Institute. Experimental Studies in Yellow Fever and Malaria at Vera Cruz, Mexico. By M. J. Rosenau, Passed Assistant Surgeon, Herman B. Parker, Passed Assistant Surgeon, Edward Francis, Assistant Surgeon, and George E. Beyer, Acting Assistant Surgeon. May, 1904. Washington.

Enlargement of the Prostate. Its History, Anatomy, Aetiology, Pathology, Clinical Causes, Symptoms, Diagnosis, Prognosis, Treatment, Technique of Operations, and After-treatment. By John B. Deaver, M.D., assisted by Astley Paston Cooper Ashhurst, M. D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

Some Forms of Insanity due to Alcohol. Especially in Their Medico-legal Relations. By Charles K. Mills, M.D. Reprint.

Morphinomania, Cocomania, and General Narcomania, and Some of Their Legal Consequences. By Charles K. Mills, M.D. Reprint.

Maternitas. A Book Concerning the Care of the Prospective Mother and Her Child. By Charles E. Paddock, M.D. Illustrated. Chicago: Cloyd J. Head & Co. 1905.

The Medical Epitome Series. Clinical Diagnosis and Urinalysis. A Manual for Students and Practitioners. By James Rae Arneill, A.B., M.D. Series edited by Victor Cox Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1905.

A Text-Book of Medical Practice for Practitioners and Students, Edited by William Bain, M.D. Durh., M.R.C.P. Lond. Illustrated. London, New York & Bombay: Longmans, Green & Co. 1904.

Surgical Diagnosis. A Manual for Practitioners of Medicine and Surgery. By Otto G. T. Kilian, M.D. Illustrated. New York: William Wood & Co. 1905.

A Text-Book of Obstetrics. By Adam H. Wright, M.D. Illustrated. New York and London: D. Appleton & Co. 1905.

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, Other than Drug-giving, Useful for the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D. Vol. XI. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

Surface Anatomy. By T. Gillman Moorhead, M.D. (Univ. Dub.), M.R.C.P.I. Illustrated. New York: William Wood & Co. 1905.

Practical Problems of Diet and Nutrition. By Max Einhorn, M.D. New York: William Wood & Co. 1905.

Nothnagel's Practice. Diseases of the Blood. By Prof. Dr. P. Ehrlich, Prof. K. von Noorden, Dr. A. Lazarus and Dr. F. Pinkus. Edited with additions by Alfred Stengel, M.D. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D. Philadelphia and London: W. B. Saunders & Co. 1905.

Operative Surgery. By Joseph D. Bryant, M.D. Fourth Edition, printed from new plates. Entirely Revised and largely Rewritten. Illustrated. Vols. I and II. New York and London: D. Appleton & Co. 1905.

A Text-Book of Medical Chemistry and Toxicology. By James W. Holland, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1905.

Eye-Strain and the Psychoses. By Charles L. Dana, M.D. Reprint.

The Cerebellar Seizure (Cerebellar Fits), a Syndrome Characteristic of Cerebellar Tumors. By Charles L. Dana, M.D. Reprint.

The Partial Passing of Neurasthenia. By Charles L. Dana, M.D. Reprint.

Abuse of Medical Charity. By George W. Gay, A.M., M.D. Reprint.

Psychiatry in Its Relation to Other Sciences. By Charles L. Dana, A.M., M.D. Reprint.

Original Articles.

THE SURGERY OF RENAL AND URETERAL CALCULI.*

OBSERVATIONS ON URETERAL CALCULI.

BY ARTHUR TRACY CABOT, A.M., M.D., BOSTON,
Surgeon to the Massachusetts General Hospital.

THE following notes are put together as a record of personal experience in the study and treatment of ureteral calculi.

The great majority of stones that escape from the pelvis of the kidney find their way down through the ureter and finally reach the bladder. The pressure of the urine behind them and the peristaltic movements of the ureter itself contribute to this result. With healthy organs, the stone, if not too large, is usually carried along in this way and finally discharged. The successful progress of a stone down the canal may, however, be arrested in a variety of ways. Such arrest may be due to peculiarities in the stone, to abnormal conditions in the canal, or to a cessation of the flow of urine.

Arrest due to the stone: It is readily understood that a comparatively smooth, rounded stone will be carried along the ureter more easily than a rough irregular stone. The rough stone clings to the ureteral walls by its projections and is harder to push along. Also, by reason of its irregularity of shape, it does not fill the canal so exactly as a rounded stone and does not so completely dam back the urine, but allows of leakage alongside it. The pressure behind it can never then be very great and thus the principal force favoring its expulsion is in great measure nullified. The size of a stone must also play a considerable part in causing its arrest. It is, however, a curious fact that a patient subject to attacks of renal colic will sometimes have a very hard time with a small stone and later will pass a much larger stone with comparative ease.

Conditions in ureter favoring arrest of calculi: Points of physiological narrowing exist in the ureter, and of these the most notable and constant is at the extreme lower end where it passes through the bladder wall. There is also a slight narrowing of the ureter at the brim of the pelvis and another at a point just below the kidney.

Organic strictures occur in the ureter. The irritation of the passage of calculi is one of the more potent causes of their formation. If a patient has had previous attacks of renal colic, particularly if in any of them the stone was arrested for a considerable time at one point, the existence of a stricture may be suspected at that point, and the arrest of a subsequent stone in that part of the ureter is likely to be permanent unless relieved by operation. Such strictures are likely to occur at points of physiological narrowing because it is at those places that stones are likely to be arrested and to cause peri-ureteral inflammation.

Conditions in the kidney favoring the arrest of calculi: There are, finally, certain conditions of the kidney which make the arrest of a calculus in the ureter more probable. Any condition which diminishes renal activity makes that kidney more liable to arrest of function under reflex or other irritation. It occasionally happens, therefore, that when the ureter is stopped by a stone, the kidney instead of continuing excretion and supplying urine to wash the stone forward suffers an arrest of excretion, and the pressure from behind entirely ceases. The cases in which we are immediately aware of this cessation of function are those in which there is but one kidney. When it stops work, complete anuria results.

When two kidneys are present, it is difficult to tell to what extent the function of the affected kidney is interfered with, but *a priori* it is to be supposed that excretion is often to a great extent inhibited in the kidney whose ureter is stopped or partially obstructed by a stone. I know of no case in which this question has been studied by ureteral catheterization or by segregation of the urines from the two kidneys. Similar inhibition of function is noticed experimentally when the ureter is closed in other ways. This cessation of excretion is more likely to occur in a kidney that is already partially disabled by disease. Kidneys that have long been afflicted with calculous pyelitis are, therefore, in a condition to have their function easily inhibited.

It is probable, then, that cessation of function in the afflicted kidney plays a considerable part in bringing about the arrest of a stone in the ureter.

I have notes of nine cases of ureteral calculus. In all of them the stone was so fixed in the ureter that it was quite evidently hopeless to expect it to be moved along by natural forces. These cases may be classified by location of the stone.

At junction of upper and middle thirds of ureter, one case.

CASE I. — The patient was a young man.[1] The stone was the size of an orange seed with a rough surface. The pain was so great that the patient was rapidly becoming exhausted. The stone was removed through a lumbar incision. Ureter not sutured, but quickly closed. Recovery uneventful.

In the lower part of the middle third of ureter, two cases.

One in a young man and the other in an old broken man. In both of them the stone remained fixed for a long time and in both of them the ureter finally gave way and an abscess was formed in the peri-ureteral tissues.

CASE II. In the younger patient, the abscess extended upward behind the peritoneum and burst into the pleura. At this time I saw him in consultation, but he was already moribund. The autopsy revealed the above described condition.

CASE III. In the older patient, I opened the abscess in the loin. The stone was not found at that

*The following papers on "The Surgery of Renal and Ureteral Calculi" were read at a meeting of the Surgical Section of the Boston Medical Library in conjunction with the Suffolk District Branch of The Massachusetts Medical Society, March 1, 1905.

[1] Reported in BOSTON MEDICAL AND SURGICAL JOURNAL.

time. but was discharged subsequently. The abscess closed down to a sinus which persisted until the patient's death some months later.

In the lower third of the ureter, six cases.

CASE IV. In one case, that of a middle-aged woman,[2] the stone, a large one (190 grs.), was arrested about one and a half inches above the bladder. It was removed through an incision in the vault of the vagina and the patient made a good recovery. At that time I showed by dissection that the lower end of the ureter for about two inches could be reached through the vagina without injury to the peritoneum. This fact has since been confirmed by other operators.

CASE V. In another case, likewise in a woman, the stone was lodged in the orifice of the ureter and projected into the bladder. It was removed by the finger introduced into the bladder through an opening in the vesico-vaginal septum. This stone was very irregular in shape with three branches, one of which was engaged in the ureter and the other two projected into the bladder. The patient gave a history of having previously passed a stone similar in shape, but somewhat smaller than this one.

In the other cases the stones were not accurately located.

In two of them the stoppage was so complete that the patients were suffering from anuria when seen. These cases have been fully reported.[3] Suffice it to recall here the fact that in both the stones were very small (estimated 5 or 6 grs.) and that they were dislodged by manipulations along the ureter in search of them.

CASE VI. — These manipulations in one case involved a median laparotomy and a lumbar incision through which the left ureter was explored bimanually.

CASE VII. — In the other case, a long lumbar incision extending down inside of the anterior superior spine of the ilium permitted of very thorough exploration.

The relief of anuria was immediate in both cases and the impression was that in each the stone had been caught at the intravesical orifice of the ureter and had been dislodged by the milking of the canal incident to our manipulations. Both of these stones were recovered from the bladder with litholapaxy pump.

CASE VIII. — The patient was the same old man (Case VI) upon whom I had, some months before, done a median laparotomy in search of the stone which was causing his complete anuria of eight days' standing. He had on this second occasion evidence of another stone arrested in the left ureter. This time it had not stopped the flow of urine.

Remembering the good effect of manipulation in the previous attack, I made vigorous massage from above downward along the line of the ureter. From that time his pain ceased and he shortly passed a stone considerably larger than the one that had caused the anuria.

CASE IX was that of a lady whom I saw in consultation. She had had one kidney removed and some years later, complete anuria had supervened with symptoms of calculus. The attendant surgeon examining felt a little mass through the vault of the vagina. He pressed and examined this with considerable force. A little later examining, he could not feel it. From that time the flow of urine re-established itself and she presently passed a little stone.

The experience of the above cases teaches that the extreme lower end of the ureter is the point where stones are arrested most frequently. When a stone is caught at this point, there is a considerable chance of dislodging it by manipulation. The ureter should in such cases be stripped from above downward as thoroughly as possible. In a thin person, this can be done through the abdominal wall with considerable effect. In a woman, vaginal manipulation of the lower end of the ureter should also be thoroughly done and in a man the rectal touch should also be essayed. It is very difficult, however, except in the thinnest subjects to reach the rectal wall above the ureteric orifices.

The two cases in which abscesses formed illustrate the danger of letting a stone remain too long. It is, nevertheless, true that cases have been frequently observed in which stones have remained fixed in the ureter for years without ulcerating through and leading to an abscess.

If a stone in the ureter cannot be dislodged by manipulation over the ureter, it must be reached in some other way. If it projects into the bladder it may be approached through that viscus. A cystoscopic examination may give valuable information as to how this can best be accomplished. Young succeeded in loosening such a stone with the ureteric catheter introduced through the cystoscope.

Lewis[4] reports the passage of small stones from the ureter after uretero-catheterization, in which he thought that the catheterization and irrigation of the ureter contributed to this result.

A stone projecting considerably into the bladder, but too firmly held to be dislodged by the ureter catheter, might be detached by other firmer instruments introduced through the urethra. An attempt to accomplish this in the male bladder may be made with the lithotrite with some little hope of success. Freyer reports such a case.

In the female bladder such an attempt might be reasonably expected to succeed. A pair of dressing forceps introduced through the urethra can be easily manipulated over the floor of the bladder and with a finger in the vagina to give counter pressure, minute objects can be picked off of the bladder wall. I have never used this maneuvre on ureter stones, but have thus removed a silver wire projecting into the vesical cavity. It was one of the stitches used previously by another surgeon in closing a vesico-vaginal opening. It had acted as a nucleus for a successive re-formation of stones until it was thus discovered and removed.

In Case V I have little doubt that I could have removed the stone in this way had I realized its exact situation. Through a good-sized open cystoscopic tube also, such a stone could be readily approached in the female bladder. If manipulations through the urethra fail, the bladder can be opened suprapubically and the stone can be readily handled under the guidance of the eye. In the female an opening through the vesico-vaginal septum can be used for this purpose as was done in Case V. A stone somewhat higher up, which does not project into the bladder, must

[2] Reported in BOSTON MEDICAL AND SURGICAL JOURNAL, Dec. 25, 1890.

[3] Annals of Surgery, May, 1903.

[4] American Journal of Urology.

be approached from the outside. In the female, the vagina affords access to this part of the ureter, as was shown in Case IV. Since that case was published, Garceau, finding a stone in this part of the ureter difficult of access through his vaginal incision, opened the anterior cul-de-sac and with a finger through this opening pressed the stone down to where it could be reached and removed.

In the male, this lower part of the ureter is very difficult to reach. Young collected six cases from the literature of the subject in which stones in this part of the canal were removed through an extra-peritoneal incision and adds one case of his own, making seven cases in which this method was successfully used.

In a former paper, I suggested that stones might be removed from this part of the canal through a posterior opening like that used for removal of rectal cancer (Kraske). I established by dissection on the cadaver the possibility of exposing the ureter through this incision.

I have operated once upon a seminal vesicle through a Kraske opening. At this operation, I found that the bleeding from the hemorrhoidal vessels was difficult to control and obscured the deep field of operation. It would seem, then, that the iliac incision is better adapted for operating effectively on this part of the ureter.

Stones in any part of the ureter above this point are readily reached through Israel's incision. This incision commences at the anterior edge of the sacro-lumbar mass of muscles, a finger's breadth below the twelfth rib, the cut is to be carried parallel to the rib as far as its tip. It then turns down towards the middle of Poupart's ligament until the line of usual incision for tying the iliac artery is reached, then turning towards the middle line, and ending on the external border of the rectus muscle. According to the seat of the calculus, the opening will be made on the posterior, middle or anterior third of this line.

The x-ray is a valuable method for determining the exact locality of a stone in the ureter. I have not had the opportunity to use it in any of my own cases, as it was not in use or available at the time I saw them. I have used it with good effect in the diagnosis of kidney stones and have seen it give good results in the localization of ureter stones in the practice of other surgeons. Most of my cases occurred also before the perfection of the cystoscope made it an available aid in diagnosis. Its value cannot be over-estimated, and while I now constantly use it in suspicious cases, I have not yet had the good fortune to locate a ureter stone by its aid.

THE CASES OF RENAL AND URETERAL CALCULI AT THE BOSTON CITY HOSPITAL.

BY JOHN H. CUNNINGHAM, JR., M.D., BOSTON.

The following series of cases of renal and ureteral calculi which I have collected from the records of the Boston City Hospital with the kind aid of Dr. Z. B. Adams, includes certain information regarding the etiology, symptoms, physical examination, methods of diagnosis, operation and, in part, the subsequent course of the cases.

Although it is appreciated that the true object of such a collection of cases is essentially to contribute information about the ultimate result of operation, it has been impossible to obtain this information in more than about one half of the cases. There remains, however, considerable of value in the close correlation of the symptoms and the physical evidences which may serve some purpose to those not entirely familiar with this type of case.

Number of cases: There were forty-eight cases of renal calculus, nineteen of which were operated upon, and but one case of ureteral calculus which also came to operation.

The renal cases not operated upon had either passed gravel or stones and presented physical evidence of calculi in the kidney, or the diagnosis was made upon a rather typical history, confirmed by physical examination.

Age: The age of the patients varied from six to sixty-five years with an average age of thirty-three and one-half years, which average age is in accord with the ordinary statistical age.

Sex: It is generally stated by authorities that a slight majority of cases of renal calculus occur in males. In this small series it is more striking, thirty-seven occurring in males and eleven in females. This decided difference has been explained by some upon the grounds that a renal calculus which has entered the bladder of a female can escape through the short distensible urethra more easily than in the male.

Tuffier in a series of 203 cases showed the two sexes to be almost equally affected; 94 being males and 109 females.

Morris in 96 operations for renal calculus shows 35 females and 61 males.

It will be seen by comparison of our small series with these larger ones that our proportion of males is exceptionally large.

Side affected: In 46 cases the stone was *unilateral;* 33 occurring on the *right* side and 13 on the *left* side, and in 2 cases it was probably *bilateral.*

This differs considerably from the statistics of Morris who, in a collection of 203 cases, showed the right kidney involved in 86 instances and the left in 82; both kidneys being affected in 9, the location in 26 not being stated.

Chemical composition of the stone: Of the 19 cases in which operation was done, the analysis of the stone showed the following composition: Uric acid, 3 (possibly mixed stones); calcium oxalate, 1; uric acid and calcium oxalate, 1; calcium phosphate, calcium oxalate and triple phosphate, 1; the character not determined in 13.

As might be expected, the uric acid stone occurred in the younger patients, the oldest being twenty-six years of age.

The calcium oxalate and the mixed stones of uric acid and calcium oxalate both occurred in males which is usually found to be the case. It is to be regretted that the chemical character of

a larger number of the cases does not appear in the records.

X-ray examination: This valuable means of determining the presence of renal stone was employed in only 10 cases. Stone was demonstrated in 7, the plate being negative in 3 instances.

In the 7 cases that showed a stone by the x-ray the stone was found at operation. The chemical character of these stones was as follows: Uric acid, 2 (possibly mixed stones); calcium oxalate 1; calcium phosphate, calcum oxalate and triple phosphate 1; 3 were not determined.

The three cases which showed no calculus by x-ray were operated upon and in two cases the stones were found.

Symptoms: It is, of course, well known that there are many cases of renal calculi which cause no renal symptoms, some of which stones are found post mortem. There are others which, without previous renal symptoms, produce perinephritic abscesses, and renal suppuration. The larger number of cases, however, present lumbar pain, tenderness, hematuria and pyuria. This series of cases naturally include only those of the two latter classes.

Pain: Pain was absent in 7 cases. Characteristic unilateral renal colic occurred in 26 cases. The pain radiated to the testicle in nearly all; next in frequency to the groin and thigh; occasionally to the glans penis and in a few cases to the epigastrium. Most were accompanied by profuse perspiration and indefinite rigors, while nausea and vomiting is noted so often as to be considered constant. Nocturnal exacerbations are not noted in the records.

Fixed lumbar pain was present between the attacks in the cases presenting typical renal colic and in 13 in which colic was absent. This occurred bilaterally in 2 cases. The severity of the lumbar pain varied from an indefinite ache to a dull gnawing pain of marked degree.

Tenderness: In all of the cases bimanual examination of the affected kidney allowed a greater or less degree of tenderness, more marked, as a rule, in the loin, and often extending along the course of the ureter.

The interesting percussion test of Mr. Lloyd, that is, striking a sharp and decisive percussion blow over the kidney in the loin, which, when stone is present, usually produces an acute stabbing pain, is not noted in the records.

Tumor: A palpable kidney tumor was present in 5 cases, 4 of these were shown at operation to be enlarged by renal and perirenal suppuration. The remaining case from extensive cystic degeneration.

Transitory tumor: This occurred in 2 of the cases presenting Dittel's crises, which cases were observed by the writer while serving as house surgeon.

Frequency of micturition: This was present in 24 cases and in the larger number of these was noted as occurring more frequently in the day than in the night.

Such frequency is generally considered as a reno-vesicle reflex, transmitted by the nerves, blood vessels and visceral coats of the ureter to the bladder, which structures are directly continuous.

Hematuria: In 22 cases there were repeated intermittent attacks of macroscopic hematuria, and in some of the cases the record states that the hematuria occurred with or after an attack of renal colic. Where the character of the hematuria is noted it is said to have been of a mild degree. It is not noted that the hematuria has taken place after unusual exercise, as is usually the case. In all the cases microscopic blood of a normal or abnormal character and in varying amounts has been noted.

Pyuria: Gross pus is not noted as appearing in any of the cases except that one in which there was an accompanying cystitis. In 39 of the cases microscopic pus in varying degree was present and in 9 instances it was absent.

Miscellaneous points of interest: None of the patients presented, as far as the records show, any co-existing evidence of gout. Fourteen of the patients had passed calculi or gravel previous to entering the hospital. In 3 of the operated cases there was more than one calculus found. The chemical character of the stones in 2 of these cases was uric acid, which is usually the case with multiple calculi. The character of the stones in the other case is undetermined. One of these cases of multiple calculi occurred in the kidney which had undergone cystic degeneration, and in the other two cases renal suppuration was present.

The largest stone weighed 5 oz. and was one of the earliest cases operated.

Renal suppuration was present in 6 of the operated cases. The *cystoscope* was used in only one case and the examination proved negative. It is to be regretted that so valuable a means of diagnosis has been so little employed.

The *segregator* was employed in one case and furnished valuable evidence regarding the functional capability of the unaffected kidney.

Operations: Nineteen cases were operated with three deaths. The lumbar incision was employed alone in 17 cases. In 2 an exploratory laparotomy was performed as a preliminary measure. The abdominal incision was then closed and the operation completed through the lumbar route.

Fatal cases: In one of the 3 fatal cases the patient was a man of fifty-three years and in a very poor condition at the time of operation. Death was due to shock within the first twenty-four hours.

The second was a man of thirty-four years of age with pyonephrosis, and pylonephritis, the kidney tissue being extensively destroyed. Suppuration continued for four months after operation. Nephrectomy was then done; death ensued.

The third case was a man of forty-four years. The stone was successfully removed, and the wound in the kidney was closed by mattress suture. Ten days later there was evidence of hemorrhage into the bladder and the pulse rose

steadily. A secondary operation was performed. Nephrectomy was done to stop the hemorrhage. The patient did not rally from the operation and died.

Course of the cases until discharged from the hospital: The longest stay in the hospital was four months, the shortest time seventeen days; the average time twenty-eight days. Three patients were discharged with small sinuses; two of which subsequently healed. The remaining cases were healed at the time of discharge.

Subsequent results: Subsequent observations of the cases were only to be obtained in a very small number, all of them being cases in which operation was done. The number is 7.

(1) A renal fistula persisted during the patient's life, otherwise the patient was in good health and comfort,and lived more than twenty years after operation.

(2) The patient lived for three years after operation. Until a short time before death, was in a good condition and in comfort. Death was believed to be due to presence of calculus in the other kidney.

(3) Patient known to be in good health and without recurrence of former symptoms at the end of two years after operation.

(4) Patient known to be in good health and without recurrence of former symptoms at the end of two years after operation.

(5) Renal fistulæ persisted for eight months and then closed; the patient's condition was excellent at the end of one year after operation. No recurrence of symptoms up to that time.

(6) Patient in good health and without recurrence nine months after operation.

(7) In good health and without recurrence six months after operation.

Of the cases not operated upon nothing is known except that twelve of them were admitted to the hospital more than once with symptoms referable to renal calculus.

There are two operative cases of special historical interest. One because it was the first case in which nephro-lithotomy was performed with definite intention beforehand, so far as I am aware. This operation was done by the late Dr. William Ingalls then a member of the surgical staff, in 1873, Oct. 8. Dr. Ingalls did not report the case publicly until 1882, March 5, when he read it before one of the societies here. It was published some time later in the BOSTON MEDICAL AND SURGICAL JOURNAL, vol. cxi, pp. 483 to 492. The stone weighed 10 dr. and 4 gr. The patient recovered and lived for more than twenty years afterwards in comfort and good health, though she had a renal fistula which persisted always. The delay to publish this case gave to Mr. Morris the right to claim to have originated the operation of nephro-lithotomy in 1882 after doing it for the first time in 1881.

The second case was one of Dr. George W. Gay's which is of interest as being one of the very early, if not the first case in which stone of such large size was successfully removed. The stone weighed 5 oz. The patient made a good recovery and lived in comfort for the greater part of three years, at the end of which time he died having shown for a short time previous, symptoms indicating the presence of calculus in the other kidney.

The case of *ureteral calculus*, operated upon by Dr. J. B. Blake, has been reported in detail in THE BOSTON MEDICAL AND SURGICAL JOURNAL, vol. cli, No. 17, pp. 463, 464, 1904. A summary of the case is as follows:

The patient from whom the calculus was taken was in the City Hospital for a few days, but was operated on at his own home. The x-ray showed a shadow corresponding in size and position to the calculus.

The patient was twenty-eight years old, and had been operated on twice before this calculus was removed. In 1898, Keyes of New York removed two small calculi from the pelvis of his left kidney, and on Feb. 28, 1903, Dr. Blake opened a very large nephritic abscess. Previous to this, since 1884, when the patient was eleven years old, there had been constantly some pus in the urine, and more or less pain in the back. After incision in February, 1903, the kidney was drained through the back. In July of the same year pain in the left lower abdomen appeared, and gradually increased, with flexion of the left thigh. In December a resistant mass could be felt at a point a little below and one and a half inches to the left of the umbilicus. Dec. 24, 1903, this calculus was removed by the retro-peritoneal route. There was considerable pus about the calculus, which had apparently partly ulcerated through the ureter, and was in part embedded in the psoas muscle. Pain and flexion of the thigh were relieved. The patient died two weeks later with symptoms of peritonitis. Vomiting, which had commenced two weeks before this last operation, continued and increased. There was no calculus in the bladder.

RESULTS OF CASES OPERATED UPON FOR STONE IN THE KIDNEY. MASSACHUSETTS GENERAL HOSPITAL FROM 1897 TO 1904, INCLUSIVE.

BY HUGH CABOT, M.D., BOSTON.

ALTHOUGH it is announced that I am to deal to-night with the results of the cases of stone in the kidney, at the Massachusetts Hospital, it does not clearly appear exactly what results are intended. If we inquire only what proportion of them were permanently cured, there is but little to say, for surgery is unable to influence most of the causes which result in stone formation and therefore operation can deal only with stones which have formed, and must leave to medicine their prevention. It is not within the province of surgery, and surgery cannot be held accountable for those cases in which further trouble occurs, whether in the same or in the other kidney. It has, therefore, seemed best to examine the cases which are here collected, with reference to the occurrence of certain symptoms, and only incidentally deal with the permanency of results and with the death-rate.

Of the cases of probable renal calculus which have been in the hospital during the above period, only a little more than half are available for our purposes because some doubt has existed in regard to the diagnosis. I have chosen to deal only with those cases in which the presence of renal calculus was demonstrated either by opera-

tion, by the prompt passage of a stone, or by autopsy — in short, only those cases in which no possible doubt could exist. In this way the number has been limited to 26 cases, all of which have been treated by operation.

Age: Renal calculus is generally regarded as a disease of middle life — that is to say, of the middle portion of life — and this view is borne out by these cases, which show an average age of thirty, the extremes being fifteen years and fifty-four years.

Sex: From a large series of cases collected by French observers it was concluded that both sexes were equally liable. Mr. Henry Morris, in the cases which he collected, found the proportion of males slightly greater than that of females, but in his own personal experience found the proportion of males to females 61 to 35. In this small series the proportion of males is even larger, being 18 to 8.

Kidney most frequently affected: It is generally stated, and is borne out by large statistics, that one kidney is not notably more often affected than the other, but in this series stone was found 15 times in the right kidney, 7 times in the left. Albarran found both kidneys affected in nearly 50% of a series of cases coming to autopsy, but this, as pointed out by Morris, does not give a fair idea of the cases as seen clinically, and is probably greatly in excess of the facts. The latter authority puts the proportion at 10%, and the fact that stone was found in both kidneys in 4 cases of our series, tends to support his contention.

Hematuria: We shall hold hematuria to mean bleeding in sufficient amount to be noticed as such, either by the patient or his attendant. Though by no means an uncommon symptom, it is frequently absent, and in this series was present in about one third (9) of the cases. On the other hand blood in microscopic quantities was present in all the cases except those in which the urine was extremely purulent, and is probably present in the vast majority of all cases.

Pain: Pain of considerable amount was present in all cases and was the chief symptom for which relief was sought. It is, however, notable that in at least two cases the pain was a recent symptom, while the size of the calculi found at operation was conclusive evidence that they had existed for a much longer time. This but serves to recall the well-known fact that calculi may exist in the kidney for years without causing symptoms. Pain of a radiating character, particularly the type commonly referred to as renal colic, was present in less than half the cases (11), and is, therefore, a symptom the absence of which is far less important than its pressure.

Passage of stone, or gravel: A small stone, or gravel, in considerable quantities, was passed in 10 cases, but it is interesting to note that in 3 cases severe colics had occurred without the passage of stone at any time, and in 2 cases stones were passed without any pain which could properly be called colic.

Tumor: The term tumor will not be held to cover palpable kidneys, but only those cases in which the kidney was thought to be enlarged. Limited in this way, tumor was present in 5 cases and of these 5, 3 ended fatally, a fact which we shall notice more in detail later.

X-ray: While it is hardly within my province to speak of the value of the x-ray in the diagnosis of this condition, I shall note what it has done in these cases. Radiographs were taken in 15 of the cases and were positive in 13. The plate was negative in one case, in which a stone was subsequently found, and the failure may perhaps have been due to a considerable quantity of inspissated pus which surrounded the concretion. In one case the kidney was negative by the x-ray and negative at operation, the stone being found in the ureter. In one case the plate was doubtful. In all 15 cases stone was found. In 3 cases the plate showed stone; none was found at operation, but the prompt passage of a calculus, with relief of symptoms, showed that the plate was probably accurate. In short, as far as this small series goes, it clearly demonstrates the value of this method of diagnosis.

Duration of symptoms: Examination of the time during which many of these patients had been having symptoms directly referable to the kidney, makes it clear that the medical profession in this community is by no means inclined to advise operation at an early date. The average duration of symptoms before the patients sought, or were advised to try, surgical treatment was six and one-half years — the longest period being twenty-four years; the shortest, six months. To this lack of promptness in advising surgical treatment may perhaps be due the not particularly favorable showing as regards mortality.

Operative treatment: The operations which have been done in this series of cases are, nephro- and uretero-lithotomy, and nephrectomy. The cases of nephrectomy may be rapidly disposed of. They are 3 in number; were done upon kidneys largely destroyed and containing large calculi; and were all followed by complete and, to date, permanent recovery. Nephrotomy was done 27 times, upon 21 patients, with 4 deaths. Ureterolithotomy was done once, with one death. In the 27 nephrotomies stone was found, and removed in 21. In 6 cases stone was not found at operation, but in 4 it was passed a few days after operation, and the patients have since been well. Two patients have continued to have stones form and pass, apparently unaffected by the operation. In one case the stone was found at a subsequent operation and was presumably present at the first.

In passing it is worth while to note that in 2 cases a radical error of diagnosis was made and the patient operated upon for appendicitis by the removal of an apparently normal appendix.

One of these patients passed the calculus a few days later and recovered. The other died of uremia and at autopsy the pelvis of the right kidney was found filled with calculi.

Causes of death: In this series of 26 cases, with 33 operations, there have been 6 deaths,

and a somewhat closer examination of these 6 cases will be of interest. Three of the patients had large tumors, which in 2 cases had existed for years.

In these two extensive suppuration had taken place, extending beyond the limits of the kidney and forming subdiaphragmatic abscesses, which in one case perforated both the diaphragm and the bowel. In both cases death occurred from chronic sepsis rather than from any operation upon the kidney. The remaining case with tumor had large calculi in both kidneys and succumbed after a third operation because the amount of kidney substance was so far reduced as to be unable to do its work.

It is to these three cases that I particularly wish to draw attention as, had the diagnosis been made at an earlier date, and resort been had to surgery, the chance of a fatal issue would have been much lessened. The mortality in these cases must be lessened, not by the hospital surgeon, but by those from whom the hospital surgeon draws his cases. Of the remaining 3 cases, 2 died of uremia — one upon the eighth day following an apparently successful ureterolithotomy; the other upon the sixth day following the removal of a normal appendix; the remaining case died upon the eighth day, as the result of secondary hemorrhage, which is to-day a rare complication.

While in no way wishing to shirk responsibility for these six deaths, I do wish to call attention sharply to the fact that three of them might perhaps have been prevented and were not directly due to operations upon the kidney.

Permanency of results: Of the 20 cases which survived the operation, 13 have either been seen, or have been communicated with, recently. Of these 13, 10 have been entirely relieved and are well to date. With the remaining three the situation is as follows: One was a case of large double calculi, in which two operations were done, separated by an interval of a few months. He has been entirely relieved of pain, from which he suffered for years, but still continues to have a purulent urine and occasional attacks of irritability of the bladder. One still has pain, referred to the bladder and prostate, for which no cause has been found. There has been no recurrence of pain nor bleeding from the kidney. One continues to have pain in the kidney and pass gravel at irregular intervals, as before operation.

I would say in closing that this method of presenting the cases, while calculated, perhaps, to open the subject thoroughly for discussion, is yet one which presents the cases in their worst possible light. All failures have been thoroughly exposed, the deaths and causes of death have been given undue prominence, and nothing has been said in regard to the many cases in which brilliant operations have been followed by equally brilliant recoveries. It seems, therefore, due to the gentlemen whose cases I have thus ruthlessly exposed, to suggest that their successes are so well known that they can afford to have their failures thus thoroughly aired.

NOTES ON OPERATIONS FOR RENAL AND URETERAL STONE.

BY PAUL THORNDIKE, M.D., BOSTON.

THESE remarks will confine themselves to a brief consideration of a few points connected with the operative treatment of renal and ureteral stone.

Autopsy records show that a small number of renal stones, entirely unsuspected during life, are found upon the autopsy table. Doubtless some of these would have demonstrated slight symptoms of vesical irritability and soon if closely investigated, but the fact remains that many of these patients pass through their lives with no appreciable harm accruing from the presence of the stones. The x-ray occasionally demonstrates a previously unsuspected stone in similar fashion. Such stones may be perfectly well let alone until they give rise to symptoms indicating that their presence is becoming a menace to the safety of the kidney or of the individual. This stone (1) must have existed for many years before its presence was suspected. It finally, with the aid of an acquired infection, gave rise to an acute abscess which demanded an immediate operation at which the stone was first demonstrated. It was only a few weeks before that operation that an eminent consultant told this patient he must be very careful to follow out his instructious, medicinal, dietetic, etc., or he might develop a stone. Had this patient been suspected of renal stone because of his reflex bladder symptoms and because of the occasional cast in his urine, he might have been x-rayed and this stone demonstrated.

When operations for stone are contemplated the surgeon should always approach the case with the intention of fully investigating the kidney and the upper part of the ureter. This usually means the delivery of the kidney out upon the loin, its palpation and, if necessary, its complete splitting for purposes of examination. Such renal incisions, however, bleed so freely, that they are not to be lightly embarked upon, and if on palpation the stone can be felt in the renal substance it should be removed through as small and direct an opening as possible. This stone (2) lay imbedded in the substance of the kidney in such a way that it was absolutely impossible to feel it. Its removal was only possible after the kidney had been split by an incision along its convex border, like the incision for post-mortem examination. If such an incision is made the two halves of the kidney should be brought together with the greatest care and should be held in apposition either by a couple of mattress sutures passed through the kidney substance (as well as by the stitches along the convex border), or by gauze packing placed outside the organ and so arranged as to press the split halves together. The reader has lost one case from an omission of one or the other of these precautions, his patient dying from the shock of a nephrectomy made immediately necessary, two days after the nephrotomy, by the persistent hemorrhage into the bladder which followed the splitting

of the kidney and the removal of the stone. Such a splitting of the kidney, without the previous delivery of the organ upon the loin, the reader regards as a hazardous and, in most cases, an unjustifiable procedure. If, on approaching the kidney, stones of such size as either of these (1 and 3) are found, the question of nephrotomy *versus* nephrectomy at once arises. In this case, for instance (3), the stone was so large that there was practically no renal tissue left, but the case was an emergency operation with no previous x-ray to indicate the possible size of the stone, and by the time the true facts were ascertained during the operation, and the stone delivered, the patient's condition was such that a nephrectomy did not seem a safe risk to take at the moment. Had the x-ray given previous knowledge of the size of the stone, a nephrectomy with the stone untouched would have been the simpler procedure.

Stones which pass along into the ureter are usually arrested either in the first inch of the ureter close to the pelvic outlet or else they pass along to the next point of narrowing, where the ureter crosses the big iliac vessels. This stone (4) was such a one and was found acting as a ball valve at the outlet of the renal pelvis. It was easily removed through an incision into the renal pelvis from behind. Stones in this location usually present little difficulty of removal and such stones probably represent nearly one half of all ureteral stones found at operation. Of Morris's 44 cases, 19 were found at the upper extremity of the ureter, 15 at the vesical extremity, and the rest near the brim of the pelvis.

Stones at the vesical end of the ureter have been attacked in a variety of ways. Crawford [5] advocates digital dilatation through the suprapubic opening, and in one case, after an hour's work, succeeded in dilating the ureteral orifice with his finger tip enough to liberate a stone 1¾ inches in diameter, and he did this without lacerating the bladder membrane. The vaginal route has long been used as a means of approach for such stones and Garceau [6] has recently reported a most interesting case in which the distance between the vagina and the stone in the ureter was a little too great to allow it to be cut down upon with safety. He therefore opened the anterior cul-de-sac, pushed back the peritoneum between the bladder and the ureters and caught the stone with the crooked tip of his finger so forcing it down that it could easily be removed through a small incision. Witherspoon [7] has recently described an operation for reaching this lower end of the ureter by an extra-peritoneal route through a 4-inch incision over the lower end of the rectus muscle beginning at its insertion over the pubes and extending upwards parallel to its fibers. Stones at the ureteral orifice have also been removed through a dilated urethra in the female, and occasionally such stones have been removed through the male urethra, under guidance of the eye, with the aid of an operating cystoscope.

The third situation where ureteral stones are sometimes found is at or near the pelvic brim where the ureter crosses the iliac vessels. From this region stones have been approached and removed through the rectum by the perineal route, by the Kraske sacral route as suggested by A. T. Cabot, or in similar fashion, through an incision parallel with the sacral spines and two inches from the median line, as suggested by Morris. Stones at this point have been removed through the abdomen and also through the vagina. In Garceau's case already quoted the stone was probably about as near the pelvic brim as it was near the ureteral orifice. The extra-peritoneal, iliac route, through an incision a little above Poupart's ligament, still seems to have the call and to find favor with most surgeons.

The reader makes no apology for presenting remarks of this fragmentary character because, although some of the fragments have little connection with some others, all have been forced upon his attention, pleasantly or otherwise, in the course of his own work.

[5] American Medicine, Dec. 3, 1904.
[6] Boston Medical and Surgical Journal, April 21, 1904.
[7] N. Y. Medical Journal and Philadelphia Medical Journal, May 21, 1904.

THE DIAGNOSIS OF RENAL AND URETERAL CALCULI.

BY BENJAMIN TENNEY, M.D., BOSTON.

THE frequency with which stone is found in the kidney and ureter has been variously estimated. One gentleman [8] estimates that in over 2,000 autopsies made while acting as coroner's physician he had found stones of variable size in about 50% of the cases.

I have gone through the autopsy records of the Boston City Hospital and Massachusetts General Hospital since 1896. These records included 3,807 autopsies on both sexes and on all ages. I found 16 recorded cases where a stone was found in the kidney and 8 where stone was found in the ureter. By way of comparison I gathered the records of gallstones from the same list and found there were 146 cases. Counting the autopsies where stone was found in both kidney and ureter as a single case, there were 21 individuals with renal or ureteral calculus as compared with 146 individuals with gallstones. Among these individuals then, gallstones were nearly seven times as numerous as renal and ureteral calculi.

During the same period I find from the annual reports that there were in the surgical beds of these two institutions 489 cases of gallstones as compared with 109 cases of renal and ureteral calculus, not quite five to one. If any inference can be drawn from these figures it is that a larger proportion of the renal calculi caused symptoms requiring surgical interference than of the gallstones.

The question of sex plays little part in the diagnosis as the frequency does not greatly differ in the two sexes. In 203 operations Tuffier found 94 men and 109 women. In 200 cases Morris found 124 men and 76 women, and in 132 cases of ureteral calculus I found 58 men and 74

[8] Boston Medical and Surgical Journal, Feb. 16, 1905, p 195.

women, making a total of 276 males as compared with 259 females in a total of 535 cases. These stones may be found at all ages, but according to Morris's figures and the list of ureteral calculi before referred to, they are most numerous between the ages of twenty and forty.

of a hydronephrosis from a kink in the ureter, to stoppage of the ureter by blood-clots or stone, to a pyelonephrosis or to a new growth. The absence of a tumor points more strongly to the presence of a stone in the kidney. On the right side the diagnosis is still further complicated by

FIG. 1. FIG. 3.
Renal stones, actual size, successfully removed from two different individuals.

FIG. 2. — Renal stone, actual size.

FIG. 4. — Renal stone, actual size.

ence of a calculus.

If the symptoms are referred to the left side there is less confusion in diagnosis than when they are on the right. The presence of a tumor in the region of the kidney may point to the presence

[9] Textbook, 1900 ed.

The first problem is then to determine whether such an attack bears any relation to the kidney or ureter at all, and then to consider whether it is due to stone or some entirely different renal or ureteral condition.

After recovery from an acute attack, the pa-

of the kidney and the removal of the stone. Such a splitting of the kidney, without the previous delivery of the organ upon the loin, the reader regards as a hazardous and, in most cases, an unjustifiable procedure. If, on approaching the kidney, stones of such size as either of these (1 and 3) guidance of the eye, with the aid of an operating cystoscope.

The third situation where ureteral stones are sometimes found is at or near the pelvic brim where the ureter crosses the iliac vessels. From this region stones have been approached and removed through the abdominal wall, and also through the vagina. Stones have also been removed through a dilated urethra in the female, and occasionally such stones have been removed through the male urethra, under

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[7] N. Y. Medical Journal and Philadelphia Medical Journal, May 21, 1904.

diagnosis as the frequency does not greatly differ in the two sexes. In 203 operations Tuffier found 94 men and 109 women. In 200 cases Morris found 124 men and 76 women, and in 132 cases of ureteral calculus I found 58 men and 74

[8] Boston Medical and Surgical Journal, Feb. 16, 1905, p 195.

women, making a total of 276 males as compared with 259 females in a total of 535 cases. These stones may be found at all ages, but according to Morris's figures and the list of ureteral calculi before referred to, they are most numerous between the ages of twenty and forty.

We can separate patients into two groups, the first suffering acutely and probably in bed or desiring to go there. The second conscious of greater or less pain in one side, possibly having had one or more acute attacks a recurrence of which is feared, possibly complaining of symptoms of a general character and more or less sick, or else suffering from anuria.

The first group includes two classes, one suffering from the passage of a sharp angled concretion down the ureter, and the other from an increase of pressure within the kidney or ureter.

A typical example of the first class, to quote Fuller's[9] excellent description, "is seized with great suddeness by a sharp cramping pain usually referred to the loin on one side, sometimes to the groin, occasionally to the lateral portion of the back, at times to the middle of the abdomen. It is characteristic of this pain to radiate downwards along the course of the ureter to the neck of the bladder, perhaps into and along the urethra, into the scrotum or testicle or labium. Sometimes there is retraction of the testicle. Less frequently the pain radiates into the gluteal region, down the back of the thigh into the calf of the leg or the heel. The patient is bent forward when the spasm of pain seizes him, vomits, may have involuntary discharge from bladder or rectum, or there may be retention of urine. Frequent urination with tenesmus of the bladder or rectum is also sometimes seen."

The pain is often agonizing and the patient may be actually delirious for hours. This type of case is most easy to recognize as the symptoms are quite characteristic in location and the urine usually contains blood apparent to the naked eye.

The other class usually has a sort of aura which the patient learns to recognize. This comes on while the patient is upright, possibly while suffering some jar as in riding or dancing, or exercising in some other way. There is a feeling of restlessness, of discomfort, and then of pain in one side which may go on to produce vomiting, fainting, temporary paralysis of the intestines and even delirium, followed by great physical prostration. The pain is felt in the loin, in the back, along the ureter, in one side of the bladder, or is referred to the abdomen generally. Here the urine is diminished before and during the attack and increased after it. There may be little or no alteration in the character of the urine, but the gradual onset and increasing severity of the symptoms point to an obstruction of the urinary flow which may be due to the presence of a calculus.

If the symptoms are referred to the left side there is less confusion in diagnosis than when they are on the right. The presence of a tumor in the region of the kidney may point to the presence of a hydronephrosis from a kink in the ureter, to stoppage of the ureter by blood-clots or stone, to a pyelonephrosis or to a new growth. The absence of a tumor points more strongly to the presence of a stone in the kidney. On the right side the diagnosis is still further complicated by the fact that the symptoms may arise from the presence of a stone in the bile-ducts or appendiceal colic, and if the pain is located vaguely or near the middle of the abdomen, it may be produced by any of the causes of acute intestinal obstruction, or by the presence of a concretion in the pancreatic duct. If the patient be a female and the pain be referred to the pelvic region there is a possibility of confusion with a tubal pregnancy.

In these acute cases examination of the urine may be of some assistance or it may tell us absolutely nothing. A bloody urine may be passed by a patient with a malignant tumor, with a suppurating process in the kidney which has led to a hemorrhage, with a kidney which bleeds from some little understood cause, with a sharp concretion in the ureter, or with a new growth in the bladder. A purulent urine may be passed by a patient with a suppurating process in the kidney either primary or secondary to the presence of a stone in the kidney, or from a diseased ureter, bladder or prostate. A scanty urine may be the result of great physical prostration, of any of the conditions including stone which block the ureter, or of the small quantity of fluid taken previous to the attack.

The temperature is usually but slightly elevated, or is subnormal, the pulse rapid though varying in its rapidity. The blood count may show a slight rise in the proportion of white corpuscles. In a case which I recently saw there was a rise from 12,000 to 16,000 in four hours, but the fact that there was no further rise helped me to make a differential diagnosis between a pain connected with an acute appendix and a stone in the ureter. Israel speaks of tenderness on strong percussion over a point at the junction of the twelfth rib and the outer border of the erector spinæ muscles, and says that this pain may be felt radiating along the ureter into the bladder on that side.

The presence of tenderness and muscular spasm over the left kidney may be characteristic. On the right side we may be confused by tenderness due to disease of the bile-ducts, pancreatic ducts or appendix. It is often impossible when seeing a patient for the first time with an attack of this sort to be certain what the cause is. The recurrence of such attacks without symptoms pointing to other organs simplifies the diagnosis, and fortunately the patients seldom die during the first of these attacks due to stone in kidney or ureter.

The first problem is then to determine whether such an attack bears any relation to the kidney or ureter at all, and then to consider whether it is due to stone or some entirely different renal or ureteral condition.

After recovery from an acute attack, the pa-

[9] Textbook, 1900 ed.

tient may pass into the second group, where the symptoms are those of a chronic abdominal or pelvic irritation, or else of some nervous disturbance. The patient may be male or female, old or young, thin or fat, but is usually able to walk into the consulting room. There may be some peculiarity about the gait suggesting an unwillingness to stretch the psoas muscle. He may sit unevenly on the chair, or make some movement which suggests the attempt to get away from a discomfort in one side. His history will probably show that his discomfort is increased by active exercise and is nearly absent after lying down for a little time. Often the patient will be found to have the habit of sleeping on the affected side. There is likely to be some disturbance of urination, possibly an increase in frequency and possibly some burning pain during and after the flow. There may be a history of some acute attack similar to the one above described, or such an attack may not have occurred. One patient may habitually suffer from nausea when he begins to move about after a night's rest. Another may be alarmed on account of the absence of urination for some hours. Often the pain is difficult to locate. It may be a diffuse abdominal pain or it may be felt most severe on the opposite side from the kidney which contains the stone. Sometimes there is merely a sensation of stretching or swelling of the abdomen which is usually associated with a previous obstinate constipation. In some cases there is recurring pain referred to the distribution of some of the lower dorsal and upper lumbar nerves. Pain arising in kidney or ureter, no matter where the patient may refer it, means either the passing of a solid body through an inflamed canal, or else a rise in the internal pressure. Passing a ureteral catheter into a normal ureter causes little or no pain, but the injection of a small amount of water through this will convince any one that stretching of the pelvic cavity does produce pain. The presence of gauze or drainage tubes in the kidney pelvis causes no pain, but any condition which interferes with the free flow of urine from the pelvis will cause pain so soon as there is distention and stretching of the fibrous capsule. In one case of calculus obstruction of the ureter reported in my paper on ureteral calculi,[10] complete relief from the recurring attacks of renal pain was obtained by simply splitting the capsule of the kidney. The pain returned after six months and disappeared two years later when the stone was passed. During the six months' respite there must have been the same frequency of pelvic distention, but the split capsule could not compress the kidney substance until it had reformed across the gap.

Israel[11] after saying that stone is the most common cause of these pelvic distentions and describing the ureteral kinks produced by floating kidneys, says that with pyelonephrosis such pains are not common except from swelling of the ureteral mucous membrane or from clots of blood or pus which pass with difficulty. Tuberculous pyelitis and ureteritis are quite as likely to produce pain on account of the large sized masses which pass through the swollen ureter. Such pains are also possible from malignant tumors or parasites. More rarely renal pain is connected with stricture of the ureter, with papillary tumors, with adhesions after abdominal or pelvic operations, and with a primary ureteritis. He reports one case where such pains appeared after a nephrectomy and in which he found the stump of the ureter shut off from the bladder by a small stone and distended with pus. In this case the pain was referred to the ureter on this side and to the same half of the bladder. The following table shows at a glance the difficulty in distinguishing between renal and ureteral stones by the symptoms:

SYMPTOMS.

	Morris 103 cases renal stone.	Schenck and Tenney 128 cases ureteral stone.	
		Renal	Ureteral
Pain, loin and abdomen,		70%	26%
Renal colic,		42%	59%
Hematuria,		40%	31%
Pyuria,		57%	16%
Lumbar tumor,		26%	10%
Troubles of urination,		23%	24%
Tenderness over kidney,		17%	
Pain in external genitals,			8%

Their relative frequency shows in the following table:

RELATIVE FREQUENCY.

	Israel Operated.	Morris[12] Operated.	Leonard X-ray.	M. G. H. & B. C. H. Autopsies.
Stone in kidney,	64	29	29	13
Stone in ureter,	13	7	60	5
Stone in both,	2		4	3

When our suspicions have been aroused by the patient's history and a preliminary examination, what other means are there at hand for making more certain of the diagnosis?

SPECIAL MEANS OF DIAGNOSIS.

X-ray: A large number of most courteous replies from men who are working with the x-ray, both in and out of Boston, show their belief that radiography gives reliable information in the great majority of cases, but all admit a degree of error in both the positive and negative diagnosis. The only figures available for presentation are the personal results obtained by Dr. C. L. Leonard[13] of Philadelphia who has kindly corrected them up to Feb. 1.

In 93 of his cases with positive shadow no stone was found at operation in 5. In 233 cases with negative diagnosis a stone was found at operation or passed in 4.

The impression left on my mind after talking with and reading the reports of 17 different radiographers is that they believe the positive diagnosis to be more reliable than a negative one. The experience of surgeons, according to published reports, has been rather the reverse and more in accord with Leonard's results.

[10] Boston Medical and Surgical Journal, Feb. 4, 1904.
[11] Chirurgische Klinik der Nierenkrankheiten, 1901.
[12] Surgical Diseases of the Kidney and Ureter, 1901.
[13] American Medicine, June 4, 1904.

The x-ray should be especially valuable in the differential diagnosis between stone impacted in the ureter and a chronic inflammation of the appendix, but there is a chance for error in the presence of concretions which are not infrequently found inside such appendices and which, with the appendix in the pelvis, might fall directly in line with a stone impacted at the second constriction. While the x-ray is the most accurate single means of diagnosing and locating renal and ureteral stones, there still remains a possibility of error in the work of the most accurate and experienced radiographers which must be offset by the other evidence in each case.

CATHETERIZATION OF THE URETERS.

When possible, this proceeding should give valuable evidence in regard to the presence or absence of a stone. By this means the separate urines may be collected and examined, which is *most* desirable. If the stone be impacted in the ureter it is possible to recognize the obstruction to the passage of the catheter, sometimes to feel a grating of the stone on the catheter and to find scratch marks on a wax coated tip.

Another use of the catheter was suggested by Bierhof[14] who passed it into the pelvis of the kidney and injected 1% boric acid solution until the patient complained of pressure, when the fluid was allowed to flow off. This maneuvre was repeated until 250 cc. or 300 cc. of fluid was used. When a stone was present hematuria showed within twenty-four hours; when there was no stone there was no hematuria. He tried this in five cases and obtained positive results in two cases which were proven correct by operation. Three cases were negative and a negative diagnosis was corroborated by the x-ray twice and once by operation.

CYSTOSCOPY.

When the stone is in the ureter valuable information may be obtained by this means. A stone has been seen projecting into the bladder, the character of the ureteral orifice on the affected side may show some alteration, or the urinary jet may be absent. If the stone is in the kidney the cystoscope will probably assist only in a negative way.

PALPATION.

Multiple stones in the kidney may give crepitus under the examiner's hand. A large irregular stone in the kidney and a ureteral calculus have been felt through the abdominal wall. These are rare instances. Ureteral stones within two and a half inches of the bladder may be felt through the vagina, and through the rectum if within one and one-half inches.

A calculous kidney is often tender, and a calculous ureter is tender at its bladder end, sometimes even interfering with the marriage relation.

Lucas [15] of Guy's Hospital, London, believes that the pain and hematuria which appear after the stamping test are very characteristic. With the patient standing the thigh on the affected side is strongly flexed against the abdomen with the knee bent. The patient is now told to stamp this foot on the floor. Without calculus he expects little pain and no hematuria. When these come on within an hour or two he believes a calculus will be found in most cases.

The partial list of 14 nephrotomies: 10 nephrectomies, 3 oophorectomies, 3 appendectomies and 2 hysterectomies which preceded 132 operations for ureteral stone should warn the surgeon not to forget the possibility of this condition existing.

The location, character and time of appearance of pain together with the pain produced during an abdominal and pelvic examination when considered with the results of an examination of the separate urines passed after exercise and after rest, will in many cases settle the diagnosis. When it is still in doubt the radiograph may decide the question, or help may come from the ureteral catheter or cystoscope. Until the human element is entirely evolved from our methods, there will doubtless remain the patient who has an "exploratory operation" with diagnosis as postscript.

[14] Medical News, Oct. 11, 1902.
[15] British Medical Journal, 1904, ii, 820.

THE AIDS TO DIAGNOSIS OF RENAL CALCULI OBTAINED THROUGH THE EXAMINATION OF THE URINE.

BY H. F. HEWES, M.D., BOSTON.

Any calculus or crystalline deposit in the kidney, whether the form be that of gravel, or a movable calculus, or of a fixed stone of either primary or secondary formation, will at some period of its existence cause the appearance in the urine of abnormal features of a nature to suggest its presence.

A routine examination of the urine is therefore an essential part of the clinical procedure to be utilized in the determination of the diagnosis of this condition. The special abnormal features of the urine which as resultant associates of renal calculus may through their discovery aid us in the diagnosis, are, in the order of their value as diagnostic evidences:

(1) The presence of calculi or fragments of calculi.

(2) The presence of a combined finding of blood and casts and crystals of either uric acid or calcic oxalate or cystin, the crystals being of the so-called primary, not of the secondary type.

(3) The presence of blood and casts, or blood alone with or without crystals of secondary type.

(4) The presence of pus in considerable quantities with some blood.

Of these special features, the first, the presence of calculi, is absolutely diagnostic, if the calculus is of any form excepting phosphate or carbonate. All uric acid or calcic oxalate or cystin calculi come from the kidney. Calculi of calcic phosphate or triple phosphate or ammonium carbonate may form in the kidney or the bladder or prostate.

The second finding of blood and casts and pri-

mary crystals is also practically diagnostic of gravel or stone. It is particularly strong in its indication when, as sometimes occurs, the crystals are found embedded in the substance of casts.

The third finding of blood and casts and secondary crystals is suggestive in connection with other symptoms of stone, but unless the crystals are found on casts is not diagnostic, since a similar combination may occur in nephritis or cancer of the kidney, the crystals being accidental.

Blood alone without casts or crystals may be a sign of a movable stone in the renal pelvis or ureter or of a fixed stone in the pelvis. This finding can, however, come from so many other causes that it can in no sense be spoken of as diagnostic, though its presence in connection with severe pain is, barring the circumstance of trauma, suggestive of either calculus or neoplasm.

The fourth feature, the presence of pus in greater or less quantities mixed possibly with some blood, and often with casts, is one of the usual associated results of a fixed calculus in the kidney or renal pelvis.

This finding of pus, even pus associated with casts, is, however, a feature of several other conditions. It occurs in pyelitis from any cause. Pus may also come from a cystitis or urethritis or from the vagina. The feature is not, therefore, in itself very distinctive for the diagnosis of calculus.

All that we can say in this regard is that if we had a fixed stone we should, barring occlusion of the passages, expect to find some pus in the urine: and that in connection with the other symptoms the presence of pus, especially pus in quantity mixed with casts, is one sign of a possible calculus.

A finding of pus with an alkaline urine of ammoniacal character is, if it can be proven that the urine is alkaline upon its entrance into the bladder, not only one sign of calculus but is practically diagnostic of it.

The actual feasibility of the diagnosis of calculus by urinary examination may be stated as follows:

The presence of gravel or a movable stone in the kidney or pelvis or ureter is in all probability recognizable by a urinary examination in the vast majority of cases, provided that the urine is obtained at the time of the acute process or attack.

A fixed stone in the kidney or renal pelvis, on the other hand, shows as a rule no definitely diagnostic signs in the urine. Occasionally, as in the instance of the excretion by the ureter of an ammoniacal urine, it may do so.

In the majority of cases of this affection we have simply the signs of a pyelitis of varying grades.

Where conditions are quiescent a slight sediment of leucocytes alone occurs. Where inflammation is active large quantities of pus and some blood and casts are seen. If decomposition of urea occurs in the pelvis we have the phosphatic deposits with the ammoniacal urine.

The existence of these pyelitis signs, together with other symptoms as pain or the history of previous intermittent spells of hematuria, is always suggestive, but nothing more than suggestive. In certain cases of stone the passages may become occluded under which condition no evidence of disorder may be found in the urine.

Clinical Department.

DISCUSSION OF THE REPORT ON EARLY DIAGNOSIS OF TUBERCULOSIS.*

BY FREDERICK I. KNIGHT, M.D., BOSTON.

THAT the earliest possible recognition of any pathological condition is of supreme importance to a good physician needs no argument. Why in pulmonary tuberculosis has the diagnosis until recently been made, as a rule, so late? This has happened especially in two classes of cases; in one of these the disease begins in an insidious, chronic way, with slight cough usually in the morning, and little or no disturbance of the general health. In these cases the delay has been due largely to the fact that both physician and patient have avoided the recognition, until it was forced upon them, of a condition which was considered almost surely fatal. In the other class, commencing in an acute way the fever has been such a marked symptom and the cough so slight that the patients have been treated for malaria or typhoid fever for weeks, and in the case of the former disease sometimes for months, before the true nature of the affection was recognized. The true nature of still another class of cases, beginning with anemia, or nervous dyspepsia as noted especially by Carnot, has been too often overlooked.

Since the possible curability of the disease has been proven, a curability more likely in proportion to its incipiency, diagnosis has been attempted much earlier, especially by the younger men of the profession, usually with beneficent results to the patient, but occasionally otherwise, for, as in modern surgery brilliant results of operative work have led to many operations without the most exact diagnosis possible, so sometimes cases have been diagnosticated pulmonary tuberculosis on insufficient grounds, and patients subjected to an unnecessary breaking up of home and business. Therefore, while I urge the earliest possible diagnosis, it should be a diagnosis carefully reasoned out. We should not, however, wait in all cases for a positive diagnosis before putting our patients with suspicious symptoms under the best possible conditions for recovery.

The difficulties of the situation are complicated by the fact that it is not wholly pathological tuberculosis, but also clinical tuberculosis that we must seek, not the presence of tubercle merely, but whether, if found, it is in a situation and present condition to cause the symptoms which have excited our apprehension. We must start with the knowledge in mind that a large proportion,

* Presented at the first annual meeting of the National Association for the Prevention and Study of Tuberculosis, Washington, D. C., May 18, 1905. See JOURNAL, June 1, 1905.

perhaps a majority, of those we are called upon to examine, have foci of tubercle somewhere in their bodies, and for this reason especially, tuberculin injection is not of great clinical value, as it gives no indication of the location or condition of the deposit.

The presence of tubercle bacilli in the sputum in an incipient case would, of course, usually be evidence enough to warrant us in radical treatment; but this may not occur, and to make an early diagnosis of active tuberculosis in an incipient case without it requires a very careful examination and weighing of evidence to enable us to give an opinion which is likely to affect the whole subsequent course of a patient's life. The more symptoms and signs we have in combination, the more probable the diagnosis, but we must in the absence of any sign which may be considered pathognomonic, investigate them very carefully to be sure that no other cause is likely.

Hemoptysis, for instance, though due in a majority of cases to pulmonary tuberculosis, may be due to other causes, and I have known a patient who had this symptom to be treated in a special sanatorium and afterwards sent to Colorado, in whom it was probably due to valvular disease of the heart. Cases of hemoptysis, not followed by cough or fever and without physical signs in the lungs or heart, must be kept in the doubtful category. The same may be said of other symptoms.

The failure to show the strength of a combination of symptoms as compared with the weakness of single symptoms contributed largely in my opinion to the loss of a recent case in court by one of our large life insurance companies. The company was sued for insurance which it declined to pay on the ground that the insured had consumption and knew it at the time he was insured. The counsel for the beneficiaries interrogated one of the principal medical witnesses, who had examined the insured years before he took out the policy, as follows:

"Now, doctor, answer me 'yes' or 'no'; does dullness at the apex of the lung always denote consumption?"

"No."

"Do moist râles at the apex always denote consumption?"

"No."

"Does spitting of blood always denote consumption?"

"No."

"Do tubercle bacilli in the sputum always denote consumption?"

"No."

And all the evidence of this witness was lost because the attorney for the company in his cross examination did not ask, "Does a combination of these signs almost invariably denote consumption?"

Perhaps I would not be wrong in saying that since laboratory and other exact methods of physical examination have been perfected, too little attention is sometimes paid to the general condition of the patient.

I wish, however, at this time, to call attention especially to errors in physical diagnosis. It is altogether too common, nowadays, to make a positive diagnosis on slight physical signs. A patient should not be condemned to radical treatment on slight changes in the percussion note and respiratory murmur, or a shadow or deficient expansion as seen by the x-rays, unless these have arisen under our observation, for they may be due to an old lesion long quiescent. Here the same difficulty confronts us as, when examining a cardiac case for the first time, to know whether a murmur is an old one, or due to an acute endocarditis.

When a patient presents himself we should get first as accurate a history as possible of previous sickness or ailments, especial attention being paid to such symptoms as might have been due to lung affection. If there have never been such symptoms, and the patient was presumably healthy up to the present illness, so much the more weight can be attached to what we find on physical examination. If there have been suspicious symptoms in the previous history, physical signs, especially slight ones, if unaccompanied by constitutional disturbance, must be weighed with great care.

Medical Progress.

PROGRESS IN GASTRO-INTESTINAL DISEASES.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

(Concluded from No. 22, p. 643.)

SCHMIDT AND STRASBURGER'S TEST DIET FOR INTESTINAL DISEASES.

THE Ewald and other test meals have greatly helped in the diagnosis of gastric diseases, and it is surprising that not until recently has an attempt been made to formulate a test diet for intestinal affections. The method proposed by Schmidt and Strasburger[1] consists in the administration for three days of a uniform diet which is so arranged that it can be taken by healthy persons as well as those with severe intestinal diseases. It supplies the minimum amount of calories with a measured proportion of the three chief classes of food. Schmidt and Strasburger recommend another diet for the examination of the stools for fermentation and albuminous derivatives. This is, however, so arranged that following the first period of three days, when necessary, this other diet can be prescribed.

This more comprehensive test diet, designated Test Diet II, contains in all

Milk,	1.5 liter.	
Eggs,	3½.	
Gruel, from	80 gm.	oatmeal.
Zweiback,	100 gm.	
Sugar,	20 gm.	
Butter,	20 gm.	
Beefsteak,	125 gm.	Weighed uncooked.
Potato,	190 gm.	

[1] Die Fæces des Menschen, Hirschwald, Berlin, 1903.

This amounts to about 126.25 gm., albumin, 83.4 gm., fat, and 418.5 gm., carbohydrates, and is equivalent to 2,183.8 calories. The diet is administered in the following manner:

6.30 A.M., 12½ oz. milk, 2 zweiback (33 gm.).

9.30 A.M., 12½ oz. bouillon with ½ egg.

11 A.M., 12½ oz. milk, 1 egg.

12.–1, noon, 20 oz. gruel (prepared from 40 gm. oatmeal, 166 gm. milk, 10 gm. sugar and ½ egg); 100 gm. chopped meat, well done, (from 125 gm. raw beef and 12 gm. butter); 250 gm. potato soup (from 190 gm. ground potatoes, 60 gm. milk and 8 gm. butter).

3.30 P.M., 12½ oz. milk, 1 egg, 1 zweiback.

6.30 P.M. 20 oz. gruel (same as at noon).

The simpler diet for the study of fermentation and albuminous derivatives simply omits the meat and potatoes.

Various expedients have been tried with which to separate the stools at the beginning and end of the test period. Rubner recommends one and a half tablespoonfuls of the following prescription:

Vegetable charcoal, 15; mucilage, 15; peppermint water, 60.

Schmidt has had good success with 0.3 gm. finely powdered carmin given in a capsule.

CLINICAL STUDY OF THE GASTRIC CONTENTS.

Wegner [4] presents an interesting report of a clinical study of the gastric contents of patients at the University clinic at Rostock. Contrary to the common view he found hyperacidity (hyperchlorhydria) present in but six out of 13 cases (42.6%) of ulcer of the stomach. Free hydrochloric acid, however, was present in 93% of 54 cases. Oerum [5] reached approximately the same conclusion, for hyperacidity was present in but 58% of his cases.

It is reassuring, however, to read that hydrochloric acid was absent from the contents of 45 (90%) out of 51 cases of cancer of the stomach. Lactic acid was present in 46% of the cases. The statement made by Riegel still holds that the absence of free hydrochloric acid and the presence of lactic acid are most frequently observed in cancer, but are sometimes lacking, and exceptionally occur with other affections of the stomach.

The simple form of achylia gastrica is common, and represents merely a weakness in the secretion of the gastric glands. It was found accidentally in association with a great variety of diseases, and as a rule no symptoms appeared in consequence of it, due undoubtedly to the good gastric motility and the vicarious action of the small intestines. Achylia was constant in 12 cases of pernicious anemia, and these cases Wegner refers to as complicated achylia gastrica.

THE DETECTION OF SMALL QUANTITIES OF BLOOD IN THE STOMACH CONTENTS AND FECES.

The detection of small quantities of blood in the stomach contents and feces has led to much discussion during the last two years. Wegner's [6] work is based on the suggestions of Boas. Inspection alone often demonstrates blood, but this is unsatisfactory when the blood has changed in character, mixed with food or diluted with wash water. In such cases one is astonished to find how frequently blood is really present, if this is sought for by the guaiac test. This is performed as follows: 20 cc. to 30 cc. of gastric contents are mixed with one fifth the volume of glacial acetic acid, and then shaken up with ether. To 5 cc. of the ether extract, 10 drops of a freshly made tincture of guaiac are added, and this mixed with 15 to 20 drops of old oxidized oil of turpentine. A bluish violet color appears if blood is present. Hydrogen peroxide can be used instead of turpentine.

This reaction is extremely delicate, but unfortunately is not entirely practicable for clinical work. Traces of blood from the gums may reach the stomach, and so give rise to error. Similarly, the tube may cause slight hemorrhages in the stomach itself if the manipulation is not delicate.

The guaiac test furthermore is not specific for blood. The reaction appears if pus, bile or saliva is mixed with the fluid to be examined. Such complications can occur when sputum is swallowed, bile regurgitated into the stomach and saliva swallowed. As a rule the presence of pus can be detected by the microscope, and bile can be shown by Gmellin's test. Saliva enters the stomach with food, but if the washings of the fasting stomach are examined, the danger of error is minimized and can be almost entirely disregarded. On the whole the guaiac test is of value.

If the stools are to be examined for minute traces of blood with the guaiac test, the accidental admixture of blood from hemorrhoids, the vagina and bladder must be excluded. It is further necessary that meat or fish be shut out of the diet for two days, as otherwise a positive reaction would be of little value. In general, the examination of stomach washings for blood is more satisfactory than the examination of the stools for blood.

Clemm [7] has also studied the question of minute traces of blood in the stools and gastric contents, and its importance in the recognition of digestive diseases.

Test for blood in stools: 5 gm. to 10 gm. stools, made into soup-like consistency, if necessary with water, are shaken with 20 cc. of ether to remove the fat. The ether is poured off, and to the residue 3 cc. to 5 cc. glacial acetic acid are added. The mixture is again extracted with ether in a test tube. A few kernels of well powdered guaiac are then added to the ether, and then 20 to 30 drops of oxidized oil of turpentine. On shaking and allowing to stand a violet to blue color appears which by shaking with chloroform is absorbed and becomes more distinct. Clemm recommends wrapping the stopper of the test tube with white paper, because this will take up the color which remains only transitorily.

[4] Arch. f. Verd. Krank., Bd. xi, pr. 3, 1905.
[5] Nordeskt Med. Arkiv., 1903, No. 19.
[6] Boas: Deut. Med. Woch., 1901, No. 20. *Ibid.*, 1903, No. 47. Boas: Arch. f. Verd., 1904, Bd. x.
[7] Arch. f. Verd. Krank., Bd. x, 1904, p. 373.

The above is the original method recommended by Boas. By means of this method Boas and Kochmann were able to demonstrate the artificial addition of so small an amount as .0008 gm. blood to the gastric contents. Schmilinsky found the lowest limit in the examination of the stools to be .019 blood, while Clemm detected a clear blue in the test where .001 gm. blood was added. Hartmann found the reaction present with a dilution of .00005 gm. to .00001 gm., though this was denied in a later article by Schloss.

Boas divided gastric diseases into three groups for the interpretation of this test:

1. Those never accompanied by blood in the stools.
2. Those almost always accompanied with blood.
3. Those in which it may or may not be present.

Clemm points out that concealed hemorrhages may occur from: (1) esophagus; (2) stomach; (3) liver region, biliary apparatus and pancreas; (4) intestines; (5) hemorrhages for which no demonstrable anatomical basis can be found, — capillary and vicarious hemorrhages in consequence of disturbances in nervous vascular centers, etc.

Clemm considers the blood test most helpful in the diagnosis or treatment of the following conditions:

1. Ulcers of the esophagus, stomach and abdomen, especially from the prophylactic standpoint when the diagnosis is obscure.
2. Cancer in the alimentary tract. The constant presence of blood in cancer excludes nervous conditions, simple inflammations and ulcers.
3. Typhoid especially and possibly tuberculous and syphilitic ulcers, because of the indications derived thereby for diet and treatment.
4. The early diagnosis of pancreatic disease.
5. Tabes and paralysis because of the early detection of possible hemorrhages.

Schloss [8] has also studied the same question. He testifies to its usefulness. Among other interesting results he noted that, during the administration of bismuth to patients with ulcer of the stomach, blood was less frequently found in the stools, though it was rarely wholly absent, than when such patients took no bismuth. This confirmation of a clinical fact is welcome.

Schloss's investigations agree with the previous results of Boas and Kochmann, Hartmann and Schmilinsky that in achylia gastrica concealed hemorrhages are most exceptional.

THE DIETETIC USE OF PREDIGESTED LEGUME FLOUR.

Edsall and Miller [9] have shown that bean flour in which the starch is predigested by means of a diastatic ferment is apparently well digested and absorbed by infants and adults. An extremely concentrated food may be given in this way in fluid and partially digested form; a 20% solution, although fluid, is practically equivalent to beefsteak in nutritive value. Its influence upon the digestive tract in infants in the cases studied was usually distinctly favorable, and its influence upon metabolism in infants and adults is at least equal to that of milk. The infants usually took about 2½% of bean flour in milk modifications. Of fifteen infants treated, one did not gain and in another intercurrent illness prevented observation. One infant gained 9 oz. and then almost ceased to gain. The remaining twelve gained as follows:

15	oz. in	6	days.
13	" "	6	"
24	" "	16	"
24	" "	23	"
24	" "	17	"
32	" "	4	"
24	" "	20	"
12	" "	11	"
4	" "	3	"
12	" "	7	"
16	" "	8	"
24	" "	3	"

Edsall and Miller suggest that these results may be due to a special influence of the legume flour on metabolism and perhaps to a particular influence of the nuclein contained in this flour upon the tissue-building processes.

Unfortunately, the bean flour solution, though readily taken in milk by infants, is unpalatable for older patients for any considerable period.

HYPERTROPHY AND STENOSIS OF THE PYLORUS IN INFANTS.

Wachenheim [10] discusses hypertrophy and stenosis of the pylorus in infants in an admirable paper. The keynote in the diagnosis is the combination of obstinate vomiting, equally obstinate constipation and gradual loss of weight; an important point in the vomiting is its violence and close dependence on the ingestion of food, the quality of which is almost immaterial; meanwhile the appetite is ravenous.

As it is impossible to determine at once whether mere spasm or organic obstruction is playing the chief rôle and since operative intervention involves a mortality of about 50% it would appear best to treat the patient temporarily for the milder condition. Freund gives Carlsbad water in addition to the usual diet — breast milk or cow's milk. Some benefit appears to be derived from lavage. Wachenheim considers small and frequent meals of albumin water and barley water advantageous. Unless gain in strength and weight take place within two weeks, operation is indicated.

PSEUDO ASCITES AS THE RESULT OF CHRONIC ENTERITIS.

L. Tobler [11] reports a very interesting group of cases showing clinically the classical signs of free fluid in the peritoneal cavity, while at operation or autopsy a perfectly normal peritoneum was found with no sign of the anticipated exudate. The cases suggested very strongly tuberculous peritonitis, especially those in which there was a tuberculous lesion elsewhere. This, indeed, is the diagnosis with which most of them were

[8] *Ibid.*, 1905, Bd. x, p. 267.
[9] Amer. Jour. Med. Sci., 1905, p. 663.
[10] *Ibid.*, p. 636.
[11] Deut. Arch. f. klin. Med., 1904, p. 288, reviewed in Amer. Jour. Med. Sci., 1905, p. 157.

transferred to the surgeons. On the basis of these observations Tobler draws a clinical picture which may serve to put one on his guard in dealing with similar cases. All of the instances occurred in children, the youngest two and one-half years, the oldest nine years, the average six years. In all there is a history of continuous or recurring diarrhea for months or years, followed by a gradual enlargement of the abdomen. In some the origin of the trouble could be traced to injudicious feeding, while nearly all had been neglected or improperly treated. The general condition had suffered severely, most of the patients being weak, sickly children, poorly nourished and often extremely emaciated. Some showed definite rachitic deformities, others tuberculous bone lesions or masses of enlarged glands. There are no subjective symptoms other than occasional complaints of abdominal pain. The prominent uniformly swollen abdomen stands out in marked contrast with the emaciated chest and extremities, and on palpation feels firm, elastic and resistant. This picture is, however, not constant, as the abdomen may be only moderately enlarged, feel soft and flabby, falling from side to side with change of posture, while the intestinal coils are visible. These differences are observed not only in separate cases, but in a single case the conditions may change with surprising rapidity. In all of these cases a definite undulation could be felt, and in many there was distinct shifting dullness. The areas of percussion dullness vary within wide limits in different cases and in the same case from day to day. They may be those commonly found in ascites or more irregular in disposition. The most important differential diagnostic points from tuberculous peritonitis are the absence of fever and of all but very mild abdominal pain, the rapid change in the condition of the patient, the history of long-continued diarrhea, and the frequent irregularities in the areas of dullness, the pattern changing from day to day. None of these points are, however, distinctive, and one can judge how uncertain the diagnosis may be.

The essential symptom in these cases is the swollen abdomen, giving the definite sensation of a fluid wave. Tobler refers this condition to the fluid contents of the intestines, and from the position of the dullness concludes that the coils of the ileum are especially affected, the colon perhaps assisting to give the flank dullness, while atony of the intestinal wall and a lax mesentery allowing the coils to fall from side to side are probably important factors.

NEW BILE TEST.

Rieger[12] recommends the following method as a delicate test for bile in the urine. Two solutions are necessary; one is made by dissolving 5 gm. of paranitroamidobensol in 180 cc. of distilled water, and two, a solution made by dissolving 2.5 gm. sodium nitrate in 200 cc. distilled water. The test is performed by placing 4 cc. to 5 cc. chloroform in a test tube, and filling the same nearly full with urine. The two fluids are thoroughly mixed and the chloroform allowed to settle at the bottom of the test tube. The urine is then carefully decanted, and an equal volume of 96% alcohol poured over the chloroform. To this mixture 5 to 6 drops of solution one and the same quantity of solution two are added, and the whole well shaken. If bile pigment is present in the urine the chloroform takes on an orange or red color. Rieger considers the method far more accurate and sensitive than the ordinary Gmellin's test.

[12] Zeut. f. inn. Med., 1905, p. 389.

Reports of Societies.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT BRANCH OF THE MASSACHUSETTS MEDICAL SOCIETY. SURGICAL SECTION.

MEETING of March 1, 1905, F. B. HARRINGTON, M.D., Chairman. E. A. CODMAN, M.D., Secretary.

Papers were read on the general subject of

THE SURGERY OF RENAL AND URETERAL CALCULI.

BY DRS. A. T. CABOT, J. H. CUNNINGHAM, JR., HUGH CABOT, PAUL THORNDIKE, BENJAMIN TENNEY, H. F. HEWES.

DISCUSSION.

DR. EDWARD REYNOLDS: One point which has not been more than touched upon in this discussion strikes me as of great importance. In operating for renal stone the choice between nephrotomy and nephrectomy is always an important and frequently a very delicate decision. If the kidney is of good physiological value, if the other kidney is below par, if the ureter and pelvis of the kidney are uninfected, nephrotomy is the operation of choice. If an infected pyelitis is present, the affected kidney of low physiological value, and the other kidney already doing a great majority of the work of the body, nephrectomy is the operation of choice. On the balance of these various considerations the decision must be made and the wisdom with which the operation is selected will depend upon the intimacy of our knowledge of the conditions of the two kidneys. In a large proportion of cases if nephrectomy is to be done it is of the utmost importance that the kidney should be removed intact and without incision since incision into an infected kidney greatly increases the risk of infection of the wound, and under some circumstances makes the mere nephrotomy an operation of much higher mortality than a nephrectomy would be; hence the decision between nephrotomy and nephrectomy should frequently have been made, so far as possible, before the operation is undertaken.

I see and have seen comparatively few cases of renal calculus in men, and confine my remarks to renal calculus in women the more readily since the difference in the anatomy of the bladder in the two sexes makes the study of the subject of renal stone radically different.

In women, however, the obtaining of a comparatively exact knowledge of the state of each kidney by the ureteral catheters is so simple and safe a procedure that in my opinion we are not justified in operating upon the kidney of a woman in any case where nephrectomy is a possibility without first obtaining the most exact knowledge possible. I have had occasion more than once in this room to speak in deprecation of the

indiscriminate use of the ureteral catheters and of the necessity for experience and discrimination in interpreting their findings, but cases of renal calculus and of infection of the kidney either from above or below form the especial field in which they are of the greatest value and indeed indispensable to the best work.

One form of ureteral instrumentation which has been mentioned here I feel bound to protest against. We have heard much from Baltimore of the diagnosing of renal calculi by the passage of bougies tipped with a mixture having shoemaker's wax as its basis, and the method appears to have excited much attention and even some enthusiasm among those of the profession not especially familiar with ureteral work, but I do not think that any one can have tried it without realizing that a wax mixture which is soft enough to be scratched by a calculus under the circumstances in which it is used is also soft enough to afford a considerable risk that a portion will be left behind it in the ureter to form a probable nidus for a calculus, whether one was originally present or not. I am sure I am safe in saying that it has been received with no especial enthusiasm and indeed without any general acceptance outside the clinic of its originator.

Dr. E. W. Cushing: I wish to present a specimen, weighing 2 oz. and measuring 2½ by 2½ by 2¾ in. which was removed at an autopsy, and to call attention, first, to the fact that the patient had lived long and suffered much without obtaining a diagnosis, showing that the attention of the profession has not been sufficiently directed to the subject of renal calculus; secondly, to the fact that it would have been impossible to remove this stone by nephrotomy, for even at autopsy the projections could not be pulled out of the calyces without tearing the kidney and breaking off some of the extremities of the projecting branches.

In every case of stone, therefore, it will be necessary to choose between nephrotomy and nephrectomy, taking into consideration the size of the calculus, the general condition of the patient, the state of the other kidney, and the quality of the urine.

Of course, nephrotomy is the simpler and more conservative operation and, if it will apparently be sufficient, it should be preferred. On the other hand, it is well known that a great many nephrotomies are followed by urinary fistula, and finally the condition of the patient and the state of the kidney demand a nephrectomy, so that if this can be seen beforehand it is better to perform it at once.

Supposing the other kidney to be performing its function satisfactorily, and the condition of the patient warranting the total ablation of the diseased kidney, the indications for this procedure would be:

(1) Degeneration of the kidney into a sac, with much destruction of renal tissue.

(2) Chronic inflammation of the kidney with decomposition of urine and calcareous deposit throughout the calyces.

(3) Phlegmonous inflammation, with gangrenous state of the mucous membrane, or formation of abscess in or around the kidney.

Obviously, it is a question for the sound judgment of the surgeon in every case to determine whether the organ can be saved, or whether it must be extirpated, and this can hardly be determined in most cases without cutting into and exploring the cavity of the kidney, undesirable as it may seem to allow the foul contents to escape into the wound. Fortunately, with proper care in protection of the wound surfaces there is little trouble from infection, the patient seeming to have established resistance to his own agents of infection.

Now in many cases it is impossible to establish a diagnosis as to the presence of calculus, especially in the cases of severe inflammation. There are many admirable methods of making a positive diagnosis, but it is very difficult to exclude the possible presence of a stone.

The x-ray will not disclose a calculus of pure uric acid or xanthine; the wax-tipped bougie may not become scratched; hemorrhage may be due to a great variety of causes; the history of the case may be misleading and confused; finally the severity of the symptoms may demand operation, without waiting for repeated and long continued attempts to make a diagnosis as to the presence of calculus.

Three times within the last year I have had to remove the kidney in cases where the presence of stone could not be excluded beforehand. In two cases there were very acute inflammatory symptoms, and in one of these it was necessary to enucleate the organ from its own capsule, which was too firmly fixed to be removed. In one case where tubercle bacilli had been found in the urine, when the kidney was brought out of the incision a hard mass was found by palpation of the renal surface, which seemed very like a calculus, although incision showed that it was an isolated tuberculous nodule.

As I have just intimated it is not always possible to bring the kidney out through the wound, for it may be too adherent, and there is danger on the right side of injuring the vena cava. It is a very delicate matter to enucleate the renal body out of its bed, leaving the capsule and securing the vessels, and sometimes perforce we must be content with a nephrotomy although nephrectomy may seem desirable. It is also to be remembered in applying gauze packing on the right side in nephrectomy and gallstone operations, that the relations of the organs must not be disturbed by pressure to such an extent that the circulation in the vena cava is impeded, or grave symptoms will follow.

In removing a calculus from the ureter a point worth remembering is that the ureter remains with the peritoneum and is lifted with it from the pelvic wall and the great vessels. Also that in woman the ureter dips under the uterine artery and vein, which may be easily injured in trying to remove a stone from that neighborhood. If the kidney has already been exposed in the course of the operation, upward traction on that organ will be felt transmitted to the ureter, on the inside of the finger which is passed between the peritoneum and the pelvic wall.

If the stone is low down it is a difficult and unsatisfactory method to try to remove it extraperitoneally, involving a large wound and probability of subsequent hernia. It is also extremely difficult to close the ureteral opening by sutures, so that a fistula may result.

In such a case it is better to abandon the traditional extraperitoneal operation and open the abdomen at the border of the rectus muscle. The stone then can easily be located and may be pushed upward into a convenient place. An incision of the peritoneum parallel to and a little below the course of the external iliac artery gives access to the ureter, which is here quite movable, following the peritoneum when this is lifted upward and inward.

The ureter can be secured by padded clamps above and below the calculus, which can be removed as is a calculus from the ductus choledochus, and much more readily. With due care there is little danger of infecting the peritoneal cavity, and in cases where the stone is in the ureter the urine is not usually in bad condition. The opening in the ureter can be carefully sutured, and the peritoneum closed over it. If drainage seems necessary it can be arranged extraperitoneally, through a small incision near the pelvic wall.

Dr. F. S. Watson: The points of which I had meant to speak have been for the most part already referred to the speakers who have preceded me. Some

of them, however, will bear repetition perhaps. The first is with reference to the relatively large number of cases in which renal calculi give rise to no symptoms. The recognition of this fact is of much importance in connection with the occurrence of sudden anuria coming on without apparent cause, and the suspicion of the presence of calculus of the ureter or its outlet from the kidney or of renal calculus which has destroyed one kidney whose fellow is no longer able to carry on the double duty imposed thereby, which should be the first thought entertained as an explanation of the cessation of the urinary secretion. In my own practice there have been 8 cases of renal calculus without symptoms suggestive of the condition present, in a total of 52 patients.

The fact that the urine may fail for long periods to show anything abnormal and kidney calculus nevertheless existing, has been already noted here to-night. Five examples of this have occurred among my own cases. The size of the calculus has no bearing necessarily upon the severity of the symptoms. This point will be referred to again.

An example of erroneous inferences that may be made on the basis of the appearances seen in a skiagraph of supposed ureteral calculus was recently brought to my attention by Dr. F. Tilden Brown of New York, who showed me a picture of this sort in which there was very clearly defined what appeared to be a calculus impacted in the ureter. A second picture had been taken after Dr. Brown had passed a ureteral catheter carrying a stylet into this ureter, and it then was seen that the supposed calculus lay nearly an inch outside the line of the ureter as the latter was defined by the stylet of the catheter.

Among the numerous anomalous locations of pain dependent upon the presence of renal calculi, I have twice seen the heel as the only site of pain. One of the patients exhibited this phenomenon unfailingly in connection with the passage of calculi to the bladder from the kidney on three and the other on five different occasions.

I do not wholly agree with what Dr. Thorndike has said with respect to one or two points in the operative technique. Thus with regard to the question of laying open the kidney by a long incision through its convex border, I should state the objection to doing this on somewhat different grounds than those he has presented, and would hesitate to lay open the kidney thus in so far as the danger of hemorrhage is concerned, only when I was unable to clasp and compress the pedicle between two fingers passed one on each side of it which can often be done even though the kidney cannot be brought out on the back. I do not quite comprehend the necessity for removal of the kidney in the case in which he *says* that nephrectomy was necessitated on account of post-operative intrarenal hemorrhage in the case in which he had made a long incision through the convex border and sutured the organ afterward. I assume that it may have been demanded because he had found upon exposing it for the second time in order to check the hemorrhage, that tamponing the organ failed to accomplish that result, in which case one can see that there would be no other course open; but he did not mention having made the effort to stop the bleeding by tampon and left the impression that there was but one thing to be done under such circumstances as were described in that case, namely, nephrectomy. If this was meant I should not agree with the proposition.

The objection to contenting oneself with the examination of the interior of the kidney through a small cut, even in the cases in which a stone can be felt clearly and is readily disclosed and removed through such an incision in the renal substance is the liability to fail to find a second or multiple calculi which may co-exist with the one felt and removed. It is true that in the majority of cases simple calculi only exist, but there is a sufficiently large number in which the contrary is the case to make it very probable that they will be overlooked in a good many instances when a small incision only is made. There is the greatest difficulty sometimes in finding calculi even of considerable size when the kidney *has* been split wide open, and it is almost certain that they will be overlooked if this is not done in a good many cases.

Unless I misunderstood Dr. Thorndike, I differ from him also in the view which he expressed to the effect that it was perfectly proper to allow calculi of moderate size to remain without interference if they give rise to no symptoms. Upon this point I believe the teaching of Morris, which is directly in opposition to the above view, to be the far sounder one, and am convinced that we cannot urge too strongly the importance of removing a calculus in every case in which the stone has not passed spontaneously after a reasonable period of palliative treatment — three to six months — even though it is causing no symptoms of consequence during this time. In fact it seems to me that the commonest error in connection with the treatment is that of failure to interfere surgically in the cases in which there are no symptoms of importance and even although the stone is not of considerable size. There is ample testimony to the injury that may be done and has been done in a good many instances by allowing a stone to stay in the kidney just because it causes neither pain nor hematuria, or because it has not been sufficiently troublesome to the patient to make them seek advice. The kidney is known to have been totally destroyed under such circumstances without even the knowledge on the part of the patient that there was anything the matter, and the first intimation that has been given is the sudden arrival of complete anuria which has gone on to fatal termination. One example may serve as an illustration in support of what has just been said though the termination was fortunately a happy one in that instance. The case that I have in mind is that published by Mr. Marmaduke Sheild in the London *Lancet*, Oct. 15, 1904. The patient was a man whose first symptom dated back fourteen years, but who had never had sufficient discomfort to make him give up his work, which was of an active nature, until a very short time before his entrance to the hospital, when for the first time there occurred severe hematuria and renal colic.

Operation demonstrated that one kidney was wholly destroyed and that it contained a stone which, so far as I know, is the largest ever removed successfully. It weighed when dried somewhat over one pound; measured 5½ in. in its long diameter, and 10 in. in circumference.

It seems to me to be wholly illogical to allow a stone to remain in and to work injury upon a kidney a moment longer than necessary after the trial for a reasonable period, three to six months, of palliative treatment, quite as much so as would be a policy of noninterference were a foreign body lodged in the eye and there constituting a progressively destructive agency. The only excuse that I can conceive for permitting a continuance of such a condition would be a great danger to life involved in its removal. The danger in the case of the kidney from leaving the calculus is far greater to life than were it the eye that was in question, and the danger of operation for removal of kidney calculus, when undertaken at an early period, is very small and one that should cause no hesitation whatever in view of the grave possibilities involved in the continued presence of the calculus. I have been tempted into a longer reference to this aspect of the subject than I

had intended because of being somewhat surprised at hearing the remark of Dr. Thorndike and the inference which it allows us to draw of the harmlessness of leaving a quiescent calculus if of moderate size only, undisturbed, as the expression of the opinion of a surgeon.

With regard to the avenue of approach to the kidney in these cases, it is pretty generally agreed that the lumbar incision is far the best method to begin the operation with in all cases except the few that are sometimes met with in which there is a very large renal tumor, and every reason to anticipate much difficulty in separating adhesions, and every probability that the kidney will have to be removed by a primary nephrectomy. Even here one can gain as much space and secure an equal ease of approach and isolation of the kidney by extending the lumbar incision forward from its upper end to the peritoneal reflection or by adopting, as I personally prefer to do, the so-called paraperitoneal method in which the incision through the abdominal wall is made a little outside the linear semilunaris down to but not through the peritoneum; the latter is then stripped from the abdominal wall, and the operation remains extraperitoneal while presenting all the advantages obtained by the transperitoneal method of free space and direct approach to the pedicle without incurring the risks of peritoneal infection involved in the latter. When doing this operation or the transperitoneal through the linear semilunaris, in cases of much difficulty, I feel entirely convinced of the great benefit without corresponding additional risks, immediate or remote, that are to be gained by supplementing the first incision by a liberal transverse one. The room gained is enormously increased, and in the few cases that I have personally followed there does not seem to have been any greater liability to hernia than is seen in connection with the longitudinal incision alone.

One other matter that has not been touched upon, I think, and one that I have thought was of considerable value, is that of giving as a routine practice, as many surgeons are in the habit of doing, subcutaneous saline fluid injections at the beginning, end and after operations upon the kidneys.

Dr. E. A. Codman: In answer to a question of Dr. Harrington about the value of the x-ray in diagnosis of calculi I may say that I have seen no reason to change the statement which I made a few years ago in a paper before the Johns Hopkins Medical Society. "As yet we have not been able to keep the routine standard of excellence of the plates to a point clear enough to say positively, 'yes' or 'no.' 'Yes' we can say occasionally, 'no' rarely. On two occasions I have failed to locate in stout people small renal stones, which were later removed. Unless the patient is decidedly thin I should not have confidence in a negative diagnosis. I believe that the question of operation in such cases should be decided by the gravity of the symptoms or by a positive skiagraph which has been several times repeated. In the localization of ureteral stones the x-ray is especially helpful." The only alteration that I should care to make now, would be to put the word "frequently" instead of "occasionally."

The use of a pressure apparatus to push the intestines out of the way has proved to be a most valuable aid in getting good x-rays of the kidneys and ureteral regions. Nevertheless, I must confess that, with my own technique, in stout people I never feel able to give an absolute negative interpretation of a plate. As a practical point, a negative diagnosis should never be made unless the x-ray is clear enough to show the complete outline of the twelfth rib on both sides. The twelfth rib has an atomic weight of approximately the same value as that of a small stone, and if one can see the twelfth rib clearly, and can see no stone, it is a fair presumption that the case is negative. Of course, there is no question in regard to large stones which practically always show on good plates and sometimes even on poor plates. It should be remembered that caseous mesenteric glands, concretions in the appendix or caseous tuberculous deposits in the kidney may simulate stones in the x-ray.

I am particularly interested to see in Dr. Tenney's tables that Leonard of Philadelphia has at length admitted that mistakes may be made, for in many of his earlier articles his claims of the infallibility of the x-ray have been a matter of surprise to me.

EIGHTH ANNUAL MEETING OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.

Held at the Academy of Medicine, New York City, April 24 and 25, 1905.

(Concluded from No. 22, p. 646.)

First Day. — (Continued.)

DIVERTICULA OF THE ESOPHAGUS, WITH REPORT OF THREE CASES.

Dr. William Gerry Morgan of Washington, D. C., presented a paper on this subject (read by Dr. John P. Sawyer). He stated that ectasies or enlargements of the esophagus were of two kinds, entirely distinct in their causation and pathology, namely, dilatations, or diffuse enlargements involving more or less the entire periphery of the tube, and due usually to organic or spasmodic stenosis; and diverticula, consisting of localized bulgings or saccular protrusions, and originating from a circumscribed portion of the wall of the esophagus.

Pressure diverticula were those produced by the intra-esophageal pressure involved in swallowing, acting upon a circumscribed area of weakened esophageal wall. They were uncommon, and occurred much less frequently than traction diverticula. They might be single or double. They were rounded or oval saccular protrusions, communicating by a circumscribed or slit-like opening with the lumen of the esophagus. The esophageal diverticula that gave rise to perceptible clinical symptoms and came under observation and treatment were practically all of the pressure variety.

With regard to location, while pressure diverticula might occur in any part of the esophagus, they were divisible into two well-marked classes: (1) those at the junction of the pharynx and esophagus; (2) those below the cricoid cartilage.

Traction diverticula were pouches or eversions produced by traction from without, or cicatrices or bands adherent to the esophageal wall. They were the commonest forms of esophageal diverticula, occurring, it was said, in from one and a half to four per cent of all adults. They were nearly always situated in the middle of the esophagus, in the vicinity of the bifurcation of the trachea, with some preference for the right side. The great majority of them resulted as a sequela from tuberculous, anathracic or other form of inflammation of the bronchial glands, situated at the bifurcation of the trachea. On account of their small size, traction diverticula produced no manifest symptoms, and rarely, if ever, had they been diagnosticated or even suspected during life.

The initial symptoms observed in the upper diverticula, aside from whatever history there might be of the lodgment of foreign bodies, etc., were those of irritation, expectoration of mucus, irritable cough, hawking or of slight difficulty in swallowing. In the low

situated diverticula the earliest symptoms were usually a sense of dull, vague pressure, and slight pain or burning during the act of swallowing.

In the fully developed condition, difficulty in swallowing was one of the chief symptoms. Among other symptoms were regurgitation of food, and pain from distension of the diverticulum. Those situated in the cervical region might be manifested by tumor, visible and palpable in the neck region, and appearing or disappearing according as the sac was full or empty.

One of the most common terminal complications of diverticula situated at the upper limit of the esophagus was pneumonia and pulmonary gangrene, because by inspiration of foreign matter into the respiratory passages, an infectious pulmonary process, with fatal termination, was easily set up, especially in patients suffering from innutrition.

In accessible esophageal diverticula in the cervical region, surgical procedures for radical cure were available. In non-surgical cases, the condition might be palliated by keeping the diverticula empty and cleansed by irrigation. Astringent or antiseptic applications or irrigations might also be employed to relieve inflammatory and ulcerative conditions in the sac. As the greatest trouble in these cases arose from starvation, so the greatest results of treatment, even amounting to a symptomatic cure, might be obtained by looking after the patient's nutrition.

A CASE OF FATAL HEMORRHAGE FROM THE UPPER GASTRO-INTESTINAL TRACT, WITHOUT ANY GROSS ANATOMICAL LESION.

DR. I. ADLER of New York reported this case, and showed the specimen. The patient was a man, sixty-six years old, who was operated on for repeated attacks of hematemesis. The operation, a gastro-enterostomy, failed to reveal the source of the hemorrhages. Thirty hours after the operation he had a sudden and profuse hemorrhage from the stomach, with repeated vomiting and the passage of bloody stools, followed by rapid collapse and death. Only a partial autopsy was permitted, but the intestinal tract, from the stomach to the anus, was found to be in a normal condition.

DR. A. ROSE of New York said that in cases of hemorrhage like that reported by Dr. Adler, strapping the abdomen with plaster would probably exert some physiological effect on the circulation. The benefit derived from that method of treatment was not merely limited to the abdominal support it gave.

DR. T. B. FUTCHER of Baltimore suggested the possibility of hemophilia.

DR. MORRIS MANGES of New York thought there might have been an esophageal varix.

FURTHER REMARKS ON ISCHOCHYMIA AND ITS TREATMENT.

DR. MAX EINHORN of New York City: Ischochymia, the speaker said, or the "clinical dilatation of the stomach" of the older writers, was an important disease, to the recognition and treatment of which modern stomach pathology had made many contributions. As to the frequency of the condition, Dr. Einhorn said he met with 47 cases of ischochymia, of benign or malignant nature, among 3,243 cases of stomach disorder. It was generally well known that cases of benign ischochymia which were caused by a moderate stenosis of the pylorus, might be improved or cured by medical treatment. In these cases, dilatation of the stomach was not very great, and the peristaltic restlessness of the organ was absent or only slightly present. There were, however, exceptional cases of tremendous gastric dilatation, filling the entire left side of the abdomen down to the symphysis, with marked peristaltic restlessness, which might be cured by palliative treatment.

Usually, cases of benign ischochymia gave a long history of suffering, with periods of interspersed euphoria, whereas cases of malignant ischochymia gave a short history of illness (three to eight months), with constant suffering. There were, however, exceptions to this rule.

Benign ischochymia required, first, medical treatment. If this proved unsuccessful, *i. e.*, if after a prolonged period of treatment the fasting stomach on a fluid diet was not emptied, but contained food remnants, an operation was advisable. Second, surgical intervention was also indicated in benign ischochymia which had developed subsequent to a condition of continued hypersecretion of gastric juice, preceded by hemorrhage or not. Third, malignant ischochymia was one of dubious nature, in which, however, a thickening of the pylorus was found. It should be treated surgically.

DR. J. KAUFMANN of New York said he wished to confirm Dr. Einhorn's statement that cases of benign stenosis might recover under medical treatment, especially by the use of lavage.

SARCOMA OF THE STOMACH, WITH REPORT OF TWO CASES.

DR. MORRIS MANGES of New York City: The author stated that although it was true that sarcomata must be included among the rarer tumors of the stomach, yet recent studies had demonstrated that it might possibly occur more frequently than was generally supposed. Fenwick was probably not far from the truth in his assertion that they constituted from 5 to 10% of all gastric tumors.

The cases might be divided into two great groups: First, those *without*, and, second, those *with* gastric symptoms. In the first group were included the cases in which the tumor grew outwardly into the peritoneal cavity, and also many of the cases in which the growth was toward the gastric lumen, but in which the infiltration of the stomach did not involve the pylorus, and left the mucous membrane intact. In the second group, the gastric symptoms were practically those of gastric cancer. In most cases, however, the gastric symptoms were mild, and only became marked towards the end of the patient's life.

Dr. Manges then reported in detail two cases of sarcoma of the stomach that had come under his observation within one year at the Mount Sinai Hospital.

ON THE RELATIONS OF SOME OF THE METABOLIC DISEASES TO INTESTINAL DISORDERS.

DR. T. B. FUTCHER of Baltimore presented this paper. The speaker mentioned that some of the more obscure and rare metabolic diseases had been attributed by investigators to disturbances in intestinal function, and he thought that a review of some of the main facts concerning these diseases, particularly regarding alkaptonuria, ochronosis and cystinuria might be of interest.

Alkaptonuria was first described by Boedeker in 1859. The characteristics of the urine in this condition were briefly as follows: When avoided it had a normal appearance, but rapidly acquired a deep-brown color and ultimately became black on exposure to the air. Boedeker called the substance which produced these urinary changes alkapton (from "alkali," and owing to the property that urine containing it possessed of rapidly absorbing oxygen from the atmosphere in the presence of an alkali). It was not until 1891 that Baumann and Wolkow demonstrated that the peculiar reactions of alkapton were due to the presence of homogentisic acid. The view generally held regarding the etiology of alkaptonuria was that the conversion of

tyrosin into homogentisic acid was due to bacterial activity and consequent putrefactive conditions in the upper intestinal tract. The condition was congenital in the vast majority, if not all, of the cases.

Dr. Futcher said that recent observations indicated that a pathologic condition of great interest and rarity was associated with and probably due to the metabolic disturbances in alkaptonuria. This was the remarkable affection known as "ochronosis," or pigmentation of the cartilages, first described by Virchow, in 1866. In Virchow's case there was a pigmentation of the cartilages of the body of a man, sixty-seven years old, who died of the effects of an aneurism. He gave the name ochronosis to the condition, owing to the ochre-like discoloration of the cartilaginous tissues. Osler, a year ago, reported two cases of ochronosis in alkaptonuric brothers, both of which cases had been previously reported in the literature as alkaptonurics, one by Marshall and the other by Dr. Futcher, and constituting two of the four instances of alkaptonuria in this country.

Another metabolic disturbance which had generally been regarded as being dependent on intestinal disturbance was cystinuria, characterized usually by the spontaneous deposition of hexagonal crystals of cystin in the urine. The clinical significance of cystinuria was not great, because it was commonly associated with definite symptoms and might be well developed in persons apparently in good health. Occasionally, the individuals had disordered digestion, or it might be associated with anemia. Cystinuria was, at times, of surgical importance, owing to the fact that renal calculi composed of cystin might occur. As regarded its cause, the view was generally held that it was closely related to putrefactive changes in the intestinal tract.

Dr. John P. Sawyer of Cleveland spoke of the relief in diabetes that came from the use of stomach lavage, particularly when hyperchlorhydria was present.

Dr. Einhorn said he had also observed a number of cases of diabetes associated with hyperchlorhydria in which the use of alkalies reduced the quantity of sugar in the urine.

Occult Blood in the Feces and its Clinical Significance.

Dr. J. Dutton Steele of Philadelphia read a paper on this subject, in which he discussed, (1) The presence of occult blood in the feces in cancer and ulcer of the stomach and intestines. (2) Various conditions in which gastro-intestinal hemorrhage was secondary to morbid processes occurring in other organs, as cirrhosis of the liver and ulcerative endocarditis. (3) Conditions of the gastro-intestinal tract simulating ulcer or cancer, in which the test was of great value in the differential diagnosis, such as neurosis, simulating an ulcer, or gastritis and anacidity, simulating cancer. (4) Occult blood in typhoid fever.

During the past few years, Dr. Steele said, considerable attention had been paid to the clinical importance of recognizing minute quantities of blood in the discharges of the gastro-intestinal tract. The term "occult blood" had been given to these hemorrhages, since the amount present was always too small to give the usual macroscopic characteristics of blood in the feces or gastric contents. Moreover, by the time the blood was passed from the body, the corpuscles were so broken down that they could not be recognized with the microscope, and the traces of blood had to be detected chemically. The tests that had been found most suitable for clinical use was the guiac test of Weber, and the aloin test, first suggested by Klunge and Schaer. In Dr. Steele's experience, the latter had been found the more reliable, although the guiac reaction was very satisfactory. A series of observations upon two normal subjects had convinced him that red meats, if taken in sufficient qualities, would give a very decided reaction for blood in the feces. The writer then discussed the value of the test in gastric and duodenal ulcer, in carcinoma of the gastro-intestinal tract, in cirrhosis of the liver, in purpura, in tubercular enterocolitis and in typhoid fever. In the latter disease it would be natural to expect that occult hemorrhage would be very common, especially in the second or third week, when the ulceration was at its height, and it was hoped that it might be possible, by investigating every case systematically, to foretell the occurrence of visible hemorrhage by demonstrating occult blood in the stools some time before visible bleeding appeared. In this he was disappointed, although his observations had not gone far enough to be conclusive.

Second Day, April 25.

The Determination of the Gastric Area, with Special Reference to Transposition of Viscera, Hourglass Stomach, Gastroptosis, etc.

Dr. A. L. Benedict of Buffalo, N. Y.: The writer stated that the gastric area was determined in a large degree by ordinary percussion, and occasionally by palpation. Succussion, which was really a form of palpation, was also employed, especially when the stomach was dilated and partly filled with liquid and gas. In succussion we palpated not so much the stomach as its contents, and it was really a form of *ballottement*, familiar in the diagnosis of pregnancy and other conditions. It was liable to give confusing results, as we might fail to discriminate between the stomach and colon, and might infer too little or too great degrees of dilatation. Since 1893, Dr. Benedict said, he had relied mainly upon auscultatory percussion for the determination of the gastric area, and had verified the accuracy of the method by the x-rays, by outlines made before operation or necropsy, and in other ways. He had found the ordinary bimanual Cammann stethoscope, or a simple flexed modification of it, superior to the monaural instrument and the various forms of the phonendoscope. In certain cases, as when the stomach and colon were distended and in close contact, and it was impossible to discriminate between the two by ordinary percussion or even by auscultatory percussion, he substituted the tuning-fork for the percussing finger, and in his office he often substituted for the percussing finger an electric buzzer with a hard rubber stem, in order to communicate a thrill to the stomach or other organ examined. The x-ray he resorted to only in puzzling cases. Inspection with the gastrodiaphane he did not regard as very reliable and rather troublesome. Fluorescin solutions had been used to intensify the illumination of the diaphane, but in his experience they had not perceptibly done so; neither did they afford practical results with the x-rays.

Dr. Benedict then gave the history of a number of cases, illustrating the practical application of these methods in transposition of viscera, hourglass stomach, gastric dilatation and gastroptosis.

Dr. A. Rose, in connection with Dr. Benedict's paper, showed an illustration of Kemp's circumscribing gastrodiaphane. He thought there was only one reliable method of locating the stomach, and that was with the gastrodiaphane.

Dr. J. Kaufmann said he preferred to rely on simple percussion and palpation.

A COMPARISON OF THE METHODS OF LAVAGE WITH THE SYPHON TUBE AND THE POLITZER BULBS.

DR. JOHN P. SAWYER of Cleveland, Ohio: The speaker said that in determining an ectasia or anatony of the stomach, our criterion was the test of muscular function as measured by residue of known foods found after known periods of time. That this be accurate, it was necessary that the amount obtained in the test should be as nearly as possible the whole amount at the time present in the stomach. The recovery of this whole amount was difficult and often not accomplished, especially in the very group of patients in whom it was particularly desirable. To meet this difficulty by the method of expression commonly used, various modifications had been proposed. Aspirators were numerous, and yet in the popular forms much gain in efficiency could hardly be claimed. The application of the Politzer bag, recommended by Ewald and arranged by Kuttner, with a hard rubber connection piece was the most efficient simple form of aspirator. Dr. Sawyer said that in using this apparatus, he found it best to have the patient in a reclining position, with the clothes well loosened. The food residue having been aspirated as completely as possible with an empty bulb, a bulbful of solution, medicated as desired, was introduced slowly into the stomach, and free, active manipulation of the anterior abdominal wall over the region of the stomach was done with sufficient energy, shaking the posterior surface of the stomach, especially in conditions of atony or ectasia. By this manipulation was produced a considerable movement of the liquid within the stomach, resulting in a thorough cleansing, and bringing it in close contact with the cleansed membrane. The contents were then withdrawn in the aspirator, which had been controlled by pressure with the hand until that time. By this method, cleansing of the viscus could be accomplished more thoroughly, and in less time and with less fatigue to the patient than by the use of the syphon tube.

A CASE OF PEPTIC ULCER AFTER GASTRO-ENTEROSTOMY, CAUSING GASTRO-COLIC AND JEJUNO-COLIC FISTULÆ.

Reported by DR. J. KAUFMANN of New York with specimen. The patient was a man, forty-eight years old, who in December, 1901, had a gastro-enterostomy performed by Dr. F. Lange for the relief of increasing pyloric stenosis, and the recurrence of hematemesis, in spite of all internal treatment. The pylorus was found thickened, and its posterior wall adherent. The anterior surface showed an area of marked thickening, and opacity of the serous covering. A retrocolic posterior gastro-enterostomy was done. A very high jejunal loop had been taken, and since the angle caused by the fixation seemed rather acute, the afferent and efferent portions of the jejunum were connected by an entero-anastomosis. The patient made an uneventful recovery and improved for a time, but after three months his symptoms recurred, and he complained of severe abdominal pain. In October, 1902, he developed certain cerebral symptoms, difficulty in speaking and writing, defective memory, muscular tremor, exaggerated reflexes, bilateral papillitis, convulsions, and periods of unconsciousness, with complete amnesia afterwards. He gave an old syphilitic history, and on that account he was subjected to a long and vigorous treatment with mercury and potassium iodide. His cerebral symptoms gradually abated, but his abdominal pain increased in severity, and in the course of time he became a morphine habitué. Usually, his pain was located in the upper abdomen, but at times it radiated into the lower section. While it lasted, the transverse colon could be often felt as a stiff, sausage-like tumor. At times, the attacks recurred almost daily, with intermissions of perfect freedom. In November, 1903, the patient complained for the first time of a sulphurous taste and belching, followed by vomiting large quantities of fluid fecal matter. Lavage of the stomach was begun. The vomiting was not repeated, but the finding of fecal matter in the stomach became more and more frequent, and finally, during the winter of 1904–1905, it became constant. The fecal matter was even found in the fasting organ, but usually it was present only after a meal. The patient could recognize its presence by the fecal belching, and verified it by the use of the tube. The patient was operated on in March, 1905, by Dr. A. G. Gerster. He found a connection between the posterior wall of the colon and the diverticulum of the jejunum, which must have been formed by traction. On section, this connection proved to be an open channel of considerable diameter between the colon and jejunum. Both were closed by Lembert sutures. The middle portion of the transverse colon was adhesive above to the larger curvature of the stomach, and posteriorly to that loop of the jejunum which had been used in performing the primary gastro-enterostomy. The colon was reflected, and after the removal of a number of adhesions, it became evident that another and larger connection existed between the upper surface of the transverse colon and the posterior wall of the stomach, which on dissection was also found to be an open channel uniting the cavities of the stomach and the colon. These two openings were also closed. Recovery seemed uninterrupted until the sixth day, when symptoms of perforation developed, followed by collapse. An immediate laparotomy showed that the perforation was caused by extending necrosis of the sigmoid flexure from the site of the Murphy button that had been inserted to connect the ascending colon with the sigmoid flexure. The case resulted fatally.

DR. S. J. MELTZER said that while many cases of ileus were regarded as wholly or partially hysterical, the possibility of a real anatomical lesion, such as existed in this instance, should always be kept in mind.

ETIOLOGY AND SERUM TREATMENT OF DYSENTERY.

DR. WILLIAM H. PARK of New York opened the discussion on this subject. He stated that in the present state of our knowledge he thought we could definitely say that in the more severe epidemics of dysentery, the Shiga bacillus was found very abundantly in the mucous membrane of the bowel during the height of the disease, their number gradually diminishing, and finally disappearing entirely. In addition to these severe outbreaks of dysentery, there were mild epidemics scattered throughout the world, due to a number of varieties of bacilli, which might be called para-dysenteric, differing among themselves and representing, perhaps, half a dozen or more different strains. In regard to the serum treatment of dysentery, Dr. Park said that many of the acute cases in this climate were so mild that if the physician saw them early and prescribed proper medication and diet, recovery promptly took place and the use of the serum was unnecessary.

CLINICAL FEATURES AND MEDICAL TREATMENT OF THE BENIGN STENOSES OF THE PYLORUS.

DR. HENRY L. ELSNER of Syracuse, N. Y.: The speaker stated that benign stenoses of the stomach might be either functional or organic. The latter might be either congenital or acquired. Functional stenoses were likely to be transitory, and met with in highly neurotic patients. There were also cases of intermittent hyperchlorhydria, without ulcer, in which

was assumed the presence of pyloric spasm recurring at intervals of several weeks or months. Occasionally, acute dilatation of the stomach was met with, causing alarming symptoms without previous history of stenosis or other stomach disorder sufficient to direct attention to that organ. Pyloric spasm might safely be considered secondary in the majority of cases, and its presence should always lead to a strong suspicion of associated organic disease.

In the congenital type of organic stenosis, the symptoms immediately followed birth or could not be long postponed. No possible modification of the food relieved the symptoms when the stenosis was of high degree. Congenital incomplete stenosis of the pylorus was frequently the cause of chronic disturbances, which continued throughout life.

Of the acquired organic stenoses, we had, first, the intrapyloric. These included chronic cicatricial stenosis, fibrotic stenosis, general and localized, hypertrophic stenosis, as described by Curvelhier, stenosis dependent upon ulcer, acute inflammatory stenosis associated with infection, deep-seated gastritis and acute poisoning, syphilitic stenosis, tuberculous stenosis, stenosis dependent upon nonmalignant growths, and stenosis due to distortion or traction. Of organic stenoses of the extrapyloric type it was difficult to divine all the unusual and unexpected conditions which might give rise to them.

After discussing at length the symptoms of benign stenoses of the pylorus, Dr. Elsner took up the treatment of the condition, and laid down the following rules regarding it: First, such food only to be taken as the dilated stomach with motor weakness could prepare to be forwarded beyond the point of resistance for further digestion. Second, seek to prevent stagnation of food, with associated fermentation and the formation of organic acids. Third, assist, as far as possible, in the emptying of the distended stomach. Fourth, prevent tetany and other nervous and distant symptoms. Fifth, improve the general condition of the patient, and hold it at par or above par whenever possible. Sixth, treat associated symptoms as they arise by rational and natural methods, including the use of drugs, attempting by these to overcome or counteract the effect of secretory and motor anomalies.

ETIOLOGY, DIAGNOSIS AND TREATMENT OF BENIGN STENOSIS OF THE PYLORUS.

Dr. George Emerson Brewer of New York City presented this paper. He stated that in considering the clinical history of pyloric obstruction, it was necessary to keep in mind that we might and frequently did have two distinct groups of symptoms: first, those due to the disease which gave rise to the stenosis, and, second, those due to pyloric narrowing, and the resulting gastrectasia and chemical changes which occurred in the retained gastric contents. With the exception of those cases where a tumor could be palpated in the pyloric region, there were no physical signs that aided in the diagnosis in the early stages of benign stenosis. When gastrectasia occurred, however, physical examination frequently furnished important data, and inspection would often reveal the outlines of a dilated stomach through a thin abdominal wall. Occasionally, the greater aud lesser curvatures could be palpated, and splashing might often be elicited at a time when the stomach should normally be empty. Distending the stomach with air or water would often enable the examiner, by percussion, to identify its limits, and thereby furnish a fairly reliable estimate of its size.

In considering the treatment of benign pyloric stenosis, Dr. Brewer said the fact should first be appreciated that all the untoward symptoms of the disease were purely the result of a mechanical cause, and could only be relieved by re-establishing a normal connection between the stomach and intestine. It would be a waste of time to even consider drugs, massage, electricity and lavage, which at best could only be regarded as palliative measures. With the exception of the few instances in which the obstruction was so slight that the symptoms could be easily relieved by dietetic regulation, or in those exceedingly rare cases where the stenosis was due to a syphilitic ulcer or gummatous deposit, and which quickly responded to antisyphilitic treatment, surgery, and surgery alone could offer relief to these patients. In perhaps no other class of diseases of the alimentary canal had the results of surgical intervention shown more strikingly satisfactory results. It would sometimes be possible to remove the cause of the stenosis by operation; for example, when the obstruction was due to peritoneal bands or adhesions, to new growths or enlarged lymph nodes pressing upon the pylorus or the first part of the duodenum, to foreign bodies, or benign tumors of the stomach wall. In the majority of instances, however, it would be necessary either to enlarge the contracted pyloric orifice by a plastic operation, or to create a new opening between the stomach and small intestine. Digital dilatation of the pylorus had been abandoned by surgeons. The pyloroplasty of Heinecke-Mikulicz was gradually giving way to other more radical procedures, for the reason that recurrences after its employment were so frequent. The operation of Finney and posterior gastro-enterostomy were the two operations employed at present for the relief of pyloric stenosis. Finney's operation, which consisted in enlarging the pyloric opening by a plastic operation which united the first portion of the duodenum with the adjacent stomach wall was the operation of choice in cicatricial stenosis when the tissues were not too much infiltrated. In all other cases, gastro-enterostomy was to be preferred. As to the mortality of these operations, in capable hands, with the physical condition of the patient still fairly good, it should be below six per cent in benign cases.

Dr. S. W. Lambert of New York said that in the diagnosis of benign stenosis of the pylorus, as compared with malignant stenosis, the history of the patient was more important than the physical signs. So far as the treatment of the condition went, he thought surgery was the only possible help.

Dr. Howard Lilienthal of New York said he thought gastro-enterostomy had better not be performed in cases of benign stenosis if one could possibly manage to restore the parts involved to a condition more closely approaching the normal, and pyloroplasty preferably by the Finney method, was his operation of choice in these cases. That operation would probably become much more common in benign stenosis in the future than it had been in the past.

Dr. Edward Quintard of New York said that while in favored operative interference in certain cases of benign stenosis, he was more conservative than formerly in sending these patients to the surgeon.

Dr. A. G. Gerster of New York said he would not agree to operate on a case of benign stenosis until it had been thoroughly demonstrated that other methods of treatment had proved ineffectual.

TWO CASES OF EPILEPSY RESULTING FROM GASTRO-INTESTINAL DISTURBANCE.

Dr. Frank H. Murdoch of Pittsburg, Pa. (read by title).

ONOMATOLOGIA GASTROLOGICA.

Dr. A. Rose of New York presented a paper with this title.

Recent Literature.

A Laboratory Manual of Human Anatomy. By LEWELLYS F. BARKER, M.B. Tor., Professor and Head of the Department of Anatomy in the University of Chicago and Rush Medical College. Assisted by Dean DE WITT LEWIS, A.B., M.D., and DANIEL GRAISBERRY REVELL, A.B., M.B., Instructors in Anatomy in the University of Chicago. Illustrated. Philadelphia and London: J. B. Lippincott Company. 1905.

Dr. Barker has again shown his versatility in writing, together with Drs. Lewis and Revell, a Laboratory Manual of Human Anatomy. The book no doubt represents the consummation of his work as professor and head of the department of anatomy in the Rush Medical College, a position which he has now left to become one of the successors of Dr. William Osler in Baltimore. It is hardly necessary to say that Dr. Barker has produced a most scholarly volume quite in accord with his previous published work, and bearing no signs of haste in its preparation. As its title implies, the volume is simply a laboratory manual, but a manual which includes much more than is ordinarily designated under that name. The text confines itself essentially to directions regarding dissection and is so arranged that the student should have no difficulty in quickly turning to any subject in the course of his work. The illustrations are numerous and very well chosen from a variety of sources. There has been no attempt to introduce original plates. The descriptive text in immediate connection with the plates is so arranged that each object is directly labeled in most instances, an admirable arrangement for the student, if a somewhat expensive one for the publisher. Dr. Barker insists very rightly upon the importance of the first anatomical dissections, not only in themselves, but also as a preliminary training for later medical work. His book should do much to stimulate the accuracy which he desires. Important books of reference are mentioned in the introduction, together with much other information, which should be of service to the student. The nomenclature used is that formulated by the German Society of Anatomists and which is gaining a somewhat tardy recognition. We regret the necessity of the re-introduction of Latin terms and remain skeptical of their universal acceptance.

Medical Laboratory Methods and Tests. By HERBERT FRENCH, M.A., M.D., M.R.C.P., Medical Registrar, Guy's Hospital; Gillson Scholar, Society of Apothecaries of London; Radcliffe Travelling Fellow, Oxford University. pp. 152 and 73 illustrations. Chicago: W. T. Keener & Co.

This volume deals very briefly with the common laboratory methods and tests and the fallacies to which each is liable. It is intended to be a laboratory and not a bedside manual.

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THE PHYSICIAN OF THE FUTURE.

IN an address[1] before the graduating class of the Medical and Dental Schools of Columbian University, Washington, which is about to lose its old identity in that of the George Washington University, Dr. H. W. Wiley, of the United States Department of Agriculture, presented some suggestions to his audience which, if not all new, were at least in a considerable measure true and put in a way to attract attention.

It must have been gratifying to his hearers to be assured by a competent person of knowledge and experience that of all the arts near to the welfare of man the two nearest and most necessary are the art of agriculture and the art of healing. Man must first of all be nourished and, next to this, kept in health.

A time might come when lawyers would disappear; we might grow perfect enough to dispense with ministers of the gospel; but Ceres and Hygeia would continue to be indispensable and were, therefore, fittingly embodied on that day in his person. Good food well masticated and good hygiene well applied mean good health. But good food is not prechewed and predigested food, and the professions of medicine and dentistry must stand together in the future to fight such evils. Those who can furnish the people with good teeth and keep their stomachs in prime condition need not care who makes the laws nor who writes the songs in this country.

Dr. Wiley finds that, as a result of rationalism in medicine, the physicians of the present may be divided into three classes — the general practitioner, the specialist and the health officer who is the forerunner of the physician of the future.

[1] Science, June 2, 1905.

On the other hand the foes of rational medicine at the present time are the quack, the charlatan, and, third, the impersonal physician, namely, the nostrum, the patent medicine and the proprietary remedy. "Of these alleged remedies some have value; they are in fact often the very remedies which are described in the materia medica and the pharmacopeia and administered by physicians, but distributed as they are, with absurd claims of efficiency, taken as they are, without the advice or consent of a physician, they become not only one of the greatest foes of rational medicine, but one of the greatest dangers to the public at large."

Dr. Wiley would not deny to the inventor who discovers a new remedy or a new combination of remedies the same right to profit therefrom which is accorded to the inventor of a new machine or a new process. The law protects the inventor of such a remedy and he can protect it by patent or by trademark, but it seems to him there is no excuse for the secret nostrums and no justification for the methods of advertising them.

The physician of the future, Dr. Wiley thinks, will see a growing preponderance of preventive medicine, and the character of the profession in future years will be largely molded by the influence which this growth exerts.

The activity of preventive medicine will be shown first in the case of public and domestic hygiene. The laws of good living are as yet fairly well known to but few people, and Dr. Wiley is sanguine enough to foresee that with the aid of the public schools and the transmission of instruction thereby, public sanitation may in the course of its career even reach "that abomination of contrivance, in so far as offended hygienic conditions are concerned, the sleeping car," whose sins he portrays in forcible and picturesque words.

The physician of the future will be the herald and exponent of prophylaxis. Along with this change will come a change in the character of his emoluments. That physician will have the largest compensation whose parish is freest from disease. He will become largely a public officer, and such an official is quite as important to the welfare of the community as the assessor or tax-gatherer. As a corollary the physician of the future will become more and more active as a citizen and take a more lively interest in public affairs.

In looking carefully over the congressional directory of the Fifty-seventh Congress, Dr. Wiley finds that the Congress of the United States contains 319 lawyers, 93 business men, 32 politicians, 12 editors, reporters and newspaper writers, 8 farmers, 3 teachers, 1 clergyman, 1 military man and 3 physicians! He calls attention for a moment to the amount of legislation in which sanitary matters are involved — among other important matters, the Panama Canal, the Quarantine Service, the regulation of interstate commerce, the question of pure food. The congress of the future he foresees will contain a much larger per cent of trained medical men.

Finally, the physician of the future will find his greatest service in prolonging human life.

"To train a man for usefulness requires now fully a quarter of a century, and it seems only fair that he should have at least twice that time for the manifestation of his activities. If, therefore, he be cut off at thirty-five, forty or forty-five, the community is robbed of service to which it is entitled.

"If old age could be secured without much of the burden now attending it, there would be the gradual ripening and mellowing of all the functions of the body and mind. . . . The medical profession of the future will find its best exponent in the service of senectitude."

We hope this happy period which Dr. Wiley foresees and makes his listeners desire may come on apace. In the meantime we learn that the students of the fourth or elective year at the Harvard Medical School, who ought to be wise young men under good guidance, are electing such departments as medicine, surgery and obstetrics. They apparently anticipate that for the present society is going to demand of them more of the same old thing.

ACTINOMYCOSIS.

THE Gross prize essay for 1905 on the "Biology of the Micro-organisms of Actinomycosis," by Dr. James Homer Wright, appears as the first number of the first volume of the publications of the Massachusetts General Hospital. Dr. Wright, as the director of the Clinico-Pathological Laboratory of this hospital, has for a number of years past had a peculiarly favorable opportunity of studying actinomycosis through the clinical facilities offered by the hospital itself and through the courtesy of pathologists who have given him their material for investigation. Dr. Wright has produced a contribution which will no doubt long stand as an authoritative statement of our knowledge up to the present time of a disease which has hitherto received little attention from medical men.

As a result of his work Dr. Wright concludes

that but one species of micro-organism causes typical actinomycosis. This organism he thinks should retain the generic and specific name of actinomyces bovis given it by Bollinger and Harz. Actinomyces from human and bovine cases presented no differences sufficient to justify their classification as separate species. The prevalent belief is not accepted that the specific infectious agent of actinomycosis is to be found among certain branching micro-organisms widely distributed in the outer world. These should rather be grouped as a separate genus, and the term actinomycosis used only for those inflammatory processes, the lesions of which contain the characteristic granules. Actinomyces bovis is presumably a normal inhabitant of the secretions of the buccal cavity and the gastro-intestinal tract in man and animals, although no definite proof of this is at the present time forthcoming. The foreign bodies often found in connection with actinomycotic lesions are presumably not to be regarded as carriers of the micro-organism, but rather as sources of irritation which renders possible the development of actinomyces. Regarding mixed infections it is admitted that bacteria accompanying the specific organisms in the lesions may play an important part in the dissemination of the disease, but the fact remains that some cases of actinomycosis are to be regarded as pure infections.

These are some of the important conclusions which Dr. Wright reaches in an exhaustive research which stands high as an example of scientific method. It is also worthy of note that this essay appears as the first instalment of the publications of the Massachusetts General Hospital. It is to be presumed, therefore, that other work of a similar character will be forthcoming from this institution, published under its name. It is a certain matter of regret that much scientific work of value, which has from time to time been done at this hospital, should not have been published under its auspices. We are glad, therefore, to make note of the fact that hereafter work worthy of such distinction is to appear as a hospital publication.

ABORTIVE TREATMENT OF GONORRHEA.

THIS subject has attracted a good deal of attention for many years, and something can be said in its favor while there is much against some of the methods employed to this end. It is safe to say that no one method of aborting an infection of the urethra by the gonococcus has ever proved satisfactory in the hands of every genito-urinary surgeon; the result has been that, from time to time, a new line of treatment or a modification of an old method is strongly advocated.

The only period in the disease when the gonococcus can be quickly eradicated is very early — during the first three or four days — while the inflammatory process is confined to the superficial mucous membrane and while the infection is confined at or near the meatus. Still, an effort at complete destruction of the gonorrheal diplococcus often results in failure even when treatments can be frequently given, and when the patient fully coöperates in his part of the treatment.

Dr. Engelbreth of Copenhagen, not long since, advocated the use of a 1-200 solution of nitrate of silver as an urethral lavage, and upon his recommendation this method was successfully employed by Dr. George Gross,[1] who gives a detailed report of his case. The patient presented himself for treatment three days after coitus when the discharge showed clusters of *extracellular* gonococci. Under treatment with 1-200 and 1-500 solutions of silver nitrate a cure was effected in four days.

Granting that the diagnosis made by Dr. Gross was correct, although we are always skeptical of the diagnosis of a gonorrhea from *extracellular* diplococci where no *intracellular* diplococci have been found, the point to which we wish to call particular attention is the amount of cauterization, bleeding and pain which resulted from the treatment. It is natural to suppose that any agent introduced into the urethra which will destroy the mucous membrane is quite certain to leave cicatricial tissue which will later reduce the calibre of the urethra, and, in some instances, do damage beyond repair. We, therefore, very much doubt the advisability of using this form of aborting a gonorrhea even though the patient is willing that such an attempt be made. There are now a number of proteid compounds with silver which have been used with success in aborting the disease without seriously wounding the urethral mucous membrane. Some of these silver compounds can be used in strong solutions without harm, and, in many instances, they certainly destroy the gonococci; their long use has proved their superiority over silver nitrate in the treatment of an acute gonorrhea, whether for the purpose of aborting the disease or as a palliative measure. If the gonococcus can be eradicated from the urethra by any means which does not result in extensive cauterization and hemorrhage, we heartily favor such treatment.

[1] New York and Philadelphia Medical Journal, May 27, 1905.

MEDICAL NOTES.

EIGHTY-FOURTH ANNUAL COMMENCEMENT AT GEORGE WASHINGTON UNIVERSITY. — At its eighty-fourth annual commencement, May 29, the George Washington University conferred degrees in medicine upon 61 candidates, and in dental surgery upon 23 candidates.

THE PORTRAIT OF JOHNS HOPKINS PHYSICIANS. — It is stated that through the instrumentality of Miss Garrett of Baltimore, Mr. John S. Sargent is to paint a group consisting of Drs. Welch, Halsted, Kelly and Osler, the sittings to take place in London.

APPOINTMENT OF DR. JOHN B. MURPHY. — It is announced that Dr. John B. Murphy of Chicago, who formerly held a professorship in surgery at the Northwestern University Medical School, has been appointed to the professorship of surgery at Rush Medical College.

AMERICAN NEUROLOGICAL ASSOCIATION. — At the annual dinner of the American Neurological Association, recently held in Philadelphia, Dr. Weir Mitchell referred in a reminiscent vein to the medicine of a former period and dwelt at some length upon the possibilities in literature for physicians. The next meeting will be held in Boston, under the presidency of Dr. Henry R. Stedman, with Dr. Henry M. Thomas of Baltimore, as first vice president.

A MEMORIAL CELEBRATION IN HONOR OF TÜRCK. — The Vienna Laryngological Society has voted to celebrate in 1908 the fiftieth anniversary of the establishment by Türck of clinical laryngoscopy on a basis of usefulness to the general profession. The profession, both in Austria and abroad, will be invited to coöperate.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 7, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 18, scarlatina 31, typhoid fever 11, measles 15, tuberculosis 42, smallpox 0.

The death-rate of the reported deaths for the week ending June 7, 1905, was 16.13.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 3, 1905, was 200, against 206 the corresponding week of last year, showing a decrease of 6 deaths, and making the death-rate for the week 16.98. Of this number 105 were males and 95 were females; 197 were white and 3 colored; 121 were born in the United States, 74 in foreign countries, and 5 unknown; 38 were of American parentage, 138 of foreign parentage, and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 24 cases and 3 deaths; scarlatina, 19 cases and 2 deaths; typhoid fever, 15 cases and 1 death; measles, 21 cases and no deaths; tuberculosis, 39 cases and 18 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 13, whooping cough none, heart disease 25, bronchitis 2, and marasmus 2. There were 16 deaths from violent causes. The number of children who died under one year was 26; the number under five years, 37. The number of persons who died over sixty years of age was 59. The deaths in public institutions were 68.

Cases of cerebrospinal meningitis reported for the week were 10, the deaths, 6.

LAWRENCE C. SWIFT, M.D. — Dr. Lawrence C. Swift died at Pittsfield, Mass., from meningitis after an illness of a few days. He was born in Geneva, N. Y., and graduated from the College of Physicians and Surgeons, New York, in 1878. He had practised in Pittsfield since 1887, and was secretary of the Berkshire Medical Society and assistant medical examiner for his district. Dr. Swift's grandfather was the first graduate of West Point and subsequently its superintendent.

NEW YORK.

SALE OF MANHATTAN EYE AND EAR HOSPITAL PROPERTY. — The Manhattan Eye and Ear Hospital, the new buildings for which are now being erected in East 63d and 64th Streets, has sold the property on Park Avenue, near the Grand Central Railroad Depot, at present occupied by the institution, for the handsome sum of $420,000.

HOMEOPATHIC STATE COMMISSIONER OF HEALTH. — Governor Higgins has disappointed the regular profession by appointing Dr. Eugene H. Porter, a homeopath, State Commissioner of Health, to succeed Dr. Daniel Lewis, whose term had expired. Dr. Porter is a resident of New York City and editor of *The North American Journal of Homeopathy*.

BLOOMINGBURGH REFUSES A TUBERCULOSIS SANATORIUM.—The town of Bloomingburgh, Sullivan County, has refused to allow the City of New York to locate its proposed tuberculosis sanatorium there. The matter was discussed at length at a recent meeting of the town board, at which President Darlington and other representatives of the city health department urged the necessities

of the case. Considerable opposition developed, however, and after a special meeting of the board on June 2 it was announced that the project had been defeated by a vote of 4 to 2.

A DINNER TO DR. EMMET. — Dr. Thomas Addis Emmet was given a dinner at Delmonico's on May 29, by his medical friends, in honor of his seventy-seventh birthday. About one hundred and twenty-five guests were present, and addresses were made by Archbishop Farley, Dr. E. C. Dudley of Chicago, Dr. W. H. Baker of Boston, Dr. S. C. Gordon of Portland, Me., and Drs. William M. Polk, George T. Harrison and F. J. Quinlan of New York.

PLANS OF REORGANIZED BELLEVUE HOSPITAL. — Final approval of the modified plans for the reorganized Bellevue Hospital was made by a unanimous vote of the Board of Estimate and Apportionment on June 2, on an appropriation of $850,000 for the construction of the first section of the hospital, to be known as Pavilions A and B. The original plans prepared by Messrs. McKim, Mead and White involved a total expenditure of $10,000,000 for the new buildings, but some of the ornamental features proposed have been cut off, and the estimated cost for the completed hospital reduced to $8,500,000. These amended plans satisfied the engineers of the Finance Department, and the appropriation for the first section of the buildings, just mentioned, was made without any discussion.

HOUSE OF THE HOLY COMFORTER. — In the later part of May the new building of the House of the Holy Comforter, the Free Church Home for Incurables, which is pleasantly situated on the Hudson River, at 139th Street, was opened with public exercises. At the same time the fine chapel of the institution was dedicated by Bishop Potter, assisted by a number of clergymen. The Home was established about thirty-five years ago by the Rev. Drs. Dix and Houghton and Sister Louise, and until the present time has been located on lower Second Avenue. It was originally intended more particularly for adults, but the new quarters afford excellent accommodations for children also. In the course of his address Bishop Potter remarked that the site now occupied was especially desirable in that it allowed the ministry of nature, which is denied to those in the tenements.

OPENING OF TUBERCULOSIS CLINIC PREVENTED. — The Health Department has, for the present, been prevented by legal interference from opening the contemplated tuberculosis clinic in the Borough of Brooklyn. After hearing argument by counsel on May 26 in the Supreme Court, Brooklyn, Justice Marean continued an order restraining the Department from establishing the clinic at 75 Henry Street. The proceedings were brought by Mrs. Barbara Schloerb, acting for herself and other residents of Columbia Heights, the claim being that such a clinic would lower values and be a source of danger to the health of the neighborhood. If this action is final it is to be presumed that the Health Department will seek some other locality for its clinic. So far as is publicly known, there has never been any objection raised to the tuberculosis clinic in Manhattan, which has now been in successful operation for over a year on the busy thoroughfare, Sixth Avenue, in a building especially erected for the purpose which adjoins the headquarters of the Health Department.

EPIDEMIC CEREBROSPINAL MENINGITIS. — While the weekly average of deaths from epidemic cerebrospinal meningitis, 82.75, was practically the same as in May, 1904 (84), the epidemic of this year, although more severe than that of last, has shown a decline at an earlier date. In 1904, the disease reached its height in the second week in May, when 97 deaths were reported from it, and then began gradually to decline. This year the height of the epidemic was reached the last week in March (131 deaths), and although the disease is still far more prevalent than could be desired, there was all through the month of May a progressive decrease in the deaths from it. In the weeks ending May 6, 13, 20 and 27 the number of deaths was respectively 111, 88, 72 and 60. There has been a very gratifying reduction in the mortality from pneumonia this year, as compared with last. In the weeks just named the deaths from this disease (exclusive of bronchopneumonia) were 137, 112, 90 and 87, while in the corresponding weeks of May, 1904, the figures were 249, 175, 154 and 116.

Miscellany.

AN ENGLISH APPRECIATION OF JAPANESE MEDICINE.

SIR FREDERICK TREVES, in a speech at the dinner of the Japan Society in London, according to the *Medical News*, recently spoke enthusiastically of the medical and surgical skill of the Japanese. He said that anybody desirous of seeing the last thing, the most ingenious thing, and yet the simplest thing in the equipment of war, must go to Japan. Many of the problems which concern European armies, and have been, to a large extent, a terror of war in European

countries, the Japanese were solving or had solved. British troops, he said, enter a war with many determinations. One is 10% of sick. It is what they are accustomed to expect to get, and they get it. The Japanese are quite content with 1% of sick, and they get it. It was a question of ambition, perhaps, he said, but one which might well be imitated. Proceeding, the speaker said he was convinced that Japan, not many years hence, would provide one of the most remarkable schools of surgery that the world has ever seen. "You will understand why," he continued; "there is the infinite patience of the people, their infinite tenderness. Kinder, more sympathetic people do not exist. Then comes one very important factor, at least, in the making of a surgeon; they have no nervous system. Nerves is an untranslatable term in the Japanese language. I am confident that we shall find in the islands of Japan, not many years hence, one of the most curious, interesting and progressive schools of medicine that this world has seen."

Correspondence.

LETTER FROM PORTLAND, OREGON.

A. M. A. MEETING; LEWIS AND CLARK EXPOSITION; ROUTES OF TRAVEL; EXCURSIONS; JOURNEYS; LOCAL INDUSTRIES.

PORTLAND, ORE., May 26, 1905.

MR. EDITOR: It might interest some of those intending to visit Portland at the time of the American Medical Association meeting this summer, to read a few lines on the northwest coast, Portland, and the plans for the meeting. Of course, the regular sources of information give the principal facts, but I will try to give others from another point of view.

I am told there are to be three special trains from east of Chicago. The first two are to start early enough to allow of a stop-over at the Yellowstone Park. The third will come through to Portland without delay. These trains are to be via the Northern Pacific. There is also to be one via Union Pacific. If they are like the "North Coast Limited" they will be very comfortable. Very little dust is encountered on this route except for a short distance in eastern Washington, if the season has been a dry one. There is also to be a "Missouri River Special" from St. Louis, Kansas City and other places in Missouri and Kansas. I believe this train will be over the Union Pacific and Oregon Short Line and will come direct. They may run another special from St. Louis to the Yellowstone Park besides. The Southern Pacific specials from California do not interest the New England contingent so much.

The business meetings of the Association will be held in the armory of the Oregon National Guard and in a public school building opposite to it. The armory is like buildings of its sort elsewhere and will accommodate the exhibits, the executive departments and a hall for general sessions, and the "company rooms" will be used for all sorts of purposes. Most of the section meetings will be held in the Atkinson School building, except a couple of the larger sections which are to be in the armory.

In the evenings various entertainment features are to be provided. There is so much of interest here to show an Eastern visitor that no general banquet will be held. On one evening the Portland City and County Medical Society will give a large smoker in the New York State Building at the Lewis and Clark Fair grounds. Then the Fair will offer abundant amusement opportunities. It is a small exposition, I should judge, about half the size of the one at Buffalo a few years ago, but the situation is one of exceptional beauty, and the concessions will many of them be unique. We are especially proud of the Forestry Building, which is built of huge logs of Oregon fir, many of them six feet or more in diameter. Inside, the logs which serve as pillars give an impression like the inside of a cathedral.

The amusement street, which is to be called "The Trail," is built on a broad esplanade crossing from the main land to an island in Guild's Lake. This lake is a natural one, about a mile long and a quarter mile or more wide. The Inside Inn faces this lake on one side and looks like an attractive place to stay at.

Two steamer excursions have been arranged for. One up the Columbia to the Cascade Locks, which will give an opportunity to see what is possibly the grandest river scenery in the world, and the other down the Columbia to Seaside, one of the Oregon Coast resorts. Another short boat excursion is to go up the Willamette River for twelve miles above Portland to the falls at Oregon City. These falls are not very high, but are pretty. It probably will not be too late in the season to watch the salmon trying to jump these falls. It is a very curious sight to see if one is not familiar with it.

There are two industries in Portland which cannot fail to interest Eastern visitors. A visit to one of the great sawmills will well repay the trouble. The great logs are cut in the logging camps and brought to Portland in rafts on the river. Here these logs, many of them containing from 4,000 to 8,000 feet of lumber, are sawn up into marketable sizes. The Inman-Poulsen Lumber Company last year sawed more than any other mill in the world. The Northern Pacific, the Eastern-Western Lumber Company and several others are almost as large.

The other industry which you do not have is a salmon cannery. There is a large one in Portland where salmon are prepared for your markets. Perhaps you do not realize that most of the salmon, even fresh salmon, sold in the New York and Boston markets come from Oregon and Washington.

Portland itself is beautifully situated in the Willamette Valley, eight miles from the Columbia River. On the east the snow-capped peaks of the Cascade Mountains bound the horizon. In the long, cloudless days in July, these snow mountains are a constant feature of grandeur and beauty.

After the American Medical Association meeting is over, many will go to Alaska, which is a beautiful trip, taking about eleven or twelve days. Others can go further, to Japan or down to Hawaii or by land to the resorts of California, Nevada or Mexico. Shorter trips, full of interest and beautiful scenery, are those to the new Southern Oregon forest reserve park at Crater Lake, or to Cloud Cap Inn on Mount Hood, or to Lake Cushman in the Olympic Mountains, or to Yaquina Bay on the Oregon coast, or to Collins Hot Springs at Collins, Washington — in fact there are innumerable places different from the Eastern resorts. Seattle, Tacoma, Victoria and other Puget Sound cities are only a night's journey from Portland and are well worth seeing.

For those who are fond of either trout or salmon fishing, there are untold possibilities for sport in mountain lakes and streams, or on the seacoast. The Southern Pacific, Northern Pacific and Oregon Railroad and Navigation Company all publish literature on places to go to.

A short letter like this cannot begin to tell of all the resources of this vast Northwest Coast country. An area larger than that of New England, New York and Pennsylvania combined lies in the three states of Oregon, Washington and Idaho. Some one once said that "if the Pilgrim fathers had landed on the Pacific instead of the Atlantic coast, the East would now be a howling wilderness."

Perhaps this will give you some idea that the American Medical Association meeting and the Lewis and Clark Fair are not the only attractions which should tempt you to spend your vacation on the northwest coast this July. The fare is low (a one-way fare gives you a round-trip ticket), the trains quick and comfortable and the country interesting. The profession of the coast are making every effort to make your stay agreeable and those who come will never regret or forget the trip.

Very truly yours,

GEORGE S. WHITESIDE, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 27, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Erysipelas.	Cerebro-spinal Meningitis.
New York	3,808,644	1,295	423	27.60	14.28	2.05	.62	4.63
Chicago	1,990,780	454	134	23.00	10.57	.22	.44	—
Philadelphia	1,497,988	400	94	27.50	12.75	1.75	.50	—
St. Louis	633,826	—	—	—	—	—	—	—
Baltimore	543,229	153	50	28.10	10.36	1.30	—	.65
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	363,403	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	335,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	68	17	11.77	14.71	1.47	—	1.47
Boston	617,980	202	48	19.80	12.37	—	.49	2.27
Worcester	130,925	57	11	13.51	5.40	—	2.70	—
Fall River	119,349	32	14	31.57	15.15	—	—	—
Lowell	104,402	31	10	22.58	12.90	—	—	3.22
Cambridge	100,998	23	5	34.78	8.69	—	4.35	8.69
Lynn	73,875	24	2	25.00	—	—	—	16.67
Lawrence	72,848	20	4	35.00	15.00	—	—	10.00
Springfield	72,090	22	6	4.54	9.09	4.54	—	—
Somerville	70,413	12	4	16.67	25.00	—	—	—
New Bedford	68,863	22	6	18.18	—	—	4.54	—
Holyoke	50,538	25	12	12.00	16.00	—	4.00	—
Brockton	46,601	9	2	—	22.22	—	—	—
Newton	39,310	10	—	—	10.00	—	—	—
Haverhill	39,061	11	—	36.36	18.18	—	—	9.09
Malden	37,905	9	1	33.33	11.11	—	—	—
Salem	37,188	10	4	—	—	—	—	—
Chelsea	36,499	13	3	15.40	7.70	7.70	7.70	—
Fitchburg	36,235	4	2	—	—	—	—	—
Taunton	34,577	22	4	27.27	9.09	—	—	4.54
Everett	30,360	12	3	8.33	—	—	—	—
North Adams	29,301	4	2	—	—	—	—	—
Quincy	26,798	4	—	—	50.00	—	—	—
Gloucester	28,121	—	—	—	—	—	—	—
Waltham	25,197	5	—	20.00	20.00	—	—	—
Brookline	25,578	9	1	—	11.11	—	—	—
Pittsfield	21,870	4	—	25.00	25.00	—	—	—
Medford	21,356	6	—	16.67	16.67	16.67	—	—
Chicopee	21,292	8	4	12.50	—	12.50	—	—
Northampton	20,314	4	1	—	—	—	—	—
Beverly	15,307	2	1	50.00	—	50.00	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	7	2	28.60	—	—	—	—
Adams	14,745	3	3	66.67	—	33.33	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,509	4	1	25.00	—	—	—	—
Newburyport	14,478	5	1	40.00	20.00	—	—	—
Woburn	14,315	5	—	40.00	—	—	—	—
Melrose	13,819	—	—	—	—	—	—	—
Westfield	13,809	4	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,623	3	0	—	—	—	—	—
Revere	13,409	1	—	100.00	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,466	—	—	—	—	—	—	—
Gardner	13,224	5	4	—	20.00	—	—	—
Southbridge	11,716	5	2	60.00	—	20.00	—	—
Watertown	11,575	4	1	—	50.00	—	—	—
Weymouth	11,258	1	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,018; under five years of age, 884; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 750; acute lung diseases 379, consumption 390, scarlet fever 19, whooping cough 31, cerebrospinal meningitis 79, smallpox 0, erysipelas 18, puerperal fever 9, measles 35, typhoid fever 25, diarrheal diseases 99, diphtheria and croup 44.

From whooping cough, New York 12, Chicago 11, Philadelphia 2, Baltimore 1, Providence 1, Boston, Worcester, Lowell and Adams 1 each. From scarlet fever, New York 15, Philadelphia 1, Providence 1, Boston 1, Lawrence 1. From crebrospinal meningitis, New York 60, Philadelphia 1, Baltimore 1, Providence 1, Boston 8, Lynn 4, Cambridge 2, Lawrence 1, Lowell 1, Haverhill 1, Taunton 1. From erysipelas, New York 8, Chicago 2, Philadelphia 2, Boston, Worcester, Cambridge, New Bedford, Holyoke and Chelsea 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,809,377, for the week ending May 20, 1905, the death-rate was 14.4. Deaths reported 4,300; acute diseases of the respiratory organs (London) 95, whooping cough 129, diphtheria 29, measles 172, smallpox 1, scarlet fever 43.

The death-rate ranged from 6.0 in Kings Norton to 26.0 in Middlesbrough; London 14.1, West Ham 13.4, Brighton 16.0, Southampton 12.3, Plymouth 11.2, Bristol 14.3, Birmingham 15.4, Leicester 11.0, Nottingham 14.3, Liverpool 17.4, Wigan 16.3, Bolton 10.2, Manchester 16.4, Salford 14.6, Halifax 16.4, Bradford 14.2, Leeds 16.1, Sheffield 16.1, Hull 16.2, Newcastle-on-Tyne 11.6, Cardiff 17.1, Rhondda 19.2, Merthyr Tydfil 19.8, Burton-on-Trent 10.9, Warrington 15.3.

METEOROLOGICAL RECORD.

For the week ending May 27, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 21	30.09	54	64	43	87	44	66	W	N W	10	5	C.	C.	0
M.. 22	29.98	58	71	46	55	44	50	W	S W	9	10	O.	O.	T.
T.. 23	29.97	54	60	47	49	63	56	N E	E	18	4	C.	C.	0
W.. 24	30.12	56	68	43	86	54	45	N	S W	6	15	C.	C.	0
T.. 25	30.16	62	74	49	48	54	51	S W	S W	13	20	F.	C.	0
F.. 26	30.10	68	78	57	56	64	61	S W	S W	18	16	F.	O.	0
S.. 27	30.06	69	76	62	73	79	76	S W	S W	8	8	O.	O.	.01
☞	30.05		70	50			69							.01

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 3, 1905.

G. M. OLSON, B. ELMORE, E. O. J. EYTINGE, assistant surgeons. Appointed assistant surgeons with the rank of lieutenant (J. C.) from May 24, 1905.

J. B. MEARS, acting assistant surgeon. Ordered to additional duty at the Marine Recruiting Station, Buffalo, N. Y.

J. A. GUTHRIE, surgeon. Detached from the "Dixie" and ordered to the Naval Hospital, New York, N. Y., for treatment.

J. F. MURPHY, assistant surgeon. Ordered to additional duty on the "Dubuque."

APPOINTMENT.

DR. CHARLES STURTEVANT, of Hyde Park, Mass., has been reappointed by Governor Douglas, a medical examiner for Norfolk County. Dr. Sturtevant has held this position since it was created, and this will be his fifth term. He is a graduate of the Harvard Medical School, the class of 1862.

RECENT DEATH.

LAWRENCE CHEW SWIFT, M.D., M.M.S.S., died in Pittsfield, June 1, 1905.

BOOKS AND PAMPHLETS RECEIVED.

Eighth Annual Report of the Trustees of the Boston Insane Hospital for the Year ending Jan. 31, 1905.

Pancreatitis in Ceylon. By Dr. Albert J. Chalmers, M.D., F.R.C.S. Reprint.

Presidential Address. By Charles L. Dana, M.D. Reprint.

Albuminuric Retinitis. By L. Webster Fox, A.M., M.D. Reprint.

Saccharine Saline Injections in Ophthalmic Practice. (Sodium Benzoyl-Sulphonic.) By L. Webster Fox, A.M., M.D. Reprint.

Contraction of the Visual Field; a Symptom of Anesthesia of the Retina in Children. By L. Webster Fox, A.M., M.D. Reprint.

Department of the Interior. Bureau of Government Laboratories. Biological Laboratory. The Plague: Bacteriology, Morbid Anatomy, and Histopathology, including a Consideration of Insects as Plague Carriers. By Maximilian Herzog, M.D. Manila. 1904.

Department of the Interior. Bureau of Government Laboratories, Bacteriological Laboratory. Glanders: its Diagnosis and Prevention, together with a Report on Two Cases of Human Glanders occurring in Manila, and Some Notes on the Bacteriology and Polymorphism of Bacterium Mallei. By William B. Wherry, M.D. Manila. 1904.

Original Articles.

AN EXPERIMENTAL STUDY OF THE ACCURACY OF MODERN CLINICAL METHODS FOR THE DIAGNOSIS OF DISORDERS OF THE STOMACH.*

BY HENRY F. HEWES, M.D., BOSTON.

I. The Diagnosis of Gastrecstasis.

II. The Diagnosis of Cancer and Ulcer of the Stomach.

I. THE DIAGNOSIS OF GASTRECSTASIS.

In the clinical investigation of the conditions of disorder of the stomach there is one point which, perhaps, is of more importance for diagnosis, taking the average of the cases, than any other single fact of clinical examination. This point is the existence or the non-existence of the condition, of gastrecstasis or insufficient drainage of the stomach in the case.

The importance of this finding of gastrecstasis for diagnosis is twofold. In the first place such a finding, when it represents a constant or chronic condition, indicates that we have present an actual mechanical abnormality, a matter of knowledge which is of great value for the understanding and the treatment of the case. In the second place the finding is in a given case a very strong indication of the existence of one of two serious stomach conditions, cancer or ulcer, and its determination may be the prominant factor, often in early cases the only factor, of the clinical investigation, which leads us to a diagnosis of one of these conditions. (See Record, page 687.)

The importance of this symptom or clinical sign being such as it is, a determination of its presence or absence is an imperative part of the investigation of every case of stomach disorder which comes to the physician.

I have for some time been making an experimental study of this question of the diagnosis of the conditions of stasis in stomach cases to determine as far as possible just what means are at our disposal for the investigation of this point in clinical work, and how great accuracy in diagnosis of the conditions can be attained by the employment of this means to its full extent in routine in the clinic.

The experimental work has consisted of the study of 180 cases of various stomach conditions, including the normal condition, and the numerous varieties of stomach disorder as they appeared in the clinic, with special regard to the selection of such clinical findings as will aid in the differentiation of conditions of stasis from other conditions of the stomach.

The method of investigation adopted for this point has been that commonly recognized as the most useful single method for determining the existence of gastrecstasis in clinical work, the *examination of the contents of the fasting stomach.*

It has been demonstrated that the normal stomach after a full meal, a Leube test meal,[1] is empty of all ingested substances in a period of seven hours. A retention of food or other ingested substances, as bacteria, for periods in excess of this time therefore indicates a retention or slowness of expulsion.

The retention or stasis is almost invariably a result and indication of an obstruction of the pyloric orifice or a general weakness of the motor power of the stomach walls. Local retention of bacteria and ferment substances in the rough surfaces of a neoplasm of the wall may, however, occur without any occlusion of the pylorus or any general disturbance of motility.[2]

The stasis may vary in degree. Thus we may have a lesser degree where the Leube meal, though not expelled in seven hours, takes eight or nine, or a marked degree where the contents remains at twelve or more hours after ingestion.

In my work I have chosen the period of twelve hours after ingestion as the period of obtaining the fasting contents. It is true that lesser degrees of stasis may be overlooked by study of contents at this period alone.

It is, however, necessary to have a standard period for use in clinical work. This one is long enough over the normal to allow for normal variation and idiosyncrasy and to show, if stasis is present, that a disturbance of serious degree exists.

If more intimate study is necessary the contents may, in cases where the twelve-hour test is negative, be tested at nine hours, ten hours, etc.

The term "stasis" as used in this article, therefore, means a twelve-hour stasis, that is, retention of food or ferments (ingested substances) for a period of twelve hours after a Leube meal.

Each patient was instructed to eat a regular meal, one corresponding in a general way to a Leube test meal,[1] at 6 P.M., on the day before examination and to come to the clinic at 9 A.M., no food or other substance having been ingested in the interval. The stomach tube was then passed and the contents of the stomach obtained by expression.[3] The contents was then examined in regard to various points which a considerable experience in the study of the stomach had led me to believe might be of importance in connection with the determination of stasis or the distinguishing of stasis contents from those or other conditions. These points were:

(1) The quantity and appearance of contents.

(2) The presence of a macroscopic food residue.

(3) The character of the sediment as examined under the microscope as regards the character and number of the lower organisms, bacteria and yeast fungi, and the presence of food particles or other substances.

(4) The presence or absence of free hydrochloric acid.

(5) The presence of lactic acid.

(6) The presence and character of fermentation of the contents in vitro.

The 180 cases examined in this way included 20 cases of normal individuals, 26 cases of gastrecstasis, and 134 cases of various disorders of

* From the Medical Clinic of the Massachusetts General Hospital.

[1] Leube: Deutch. Archiv. f. klin. Med., Vol. xxxiii.

[2] Strauss: Zeitschr. f. klin. Med., Nos. xxvi and xxvii; also Deutch. Med. Wochenschr., 1896, No. xxxviii, Supplement.

[3] Contents amounting to 5 cc. or more was obtained by this method of simple expression in all but 6 of the 180 cases. Where a satisfactory specimen is not obtained water may be used to assist expression. It should never be used until after expression with the patient on his back has been thoroughly tried as the dilution interferes with some tests.

For special reasons connected with the investigation of other points in my cases, all meat or blood containing substances were excluded from the meal. Such exclusion is not, however, necessary as far as the study of stasis is concerned.

the stomach not associated with stasis according to this standard for stasis determination.

A comparative study of the records of these cases in regard to the characteristics of the fasting contents as determined by the above method of investigation indicated that the significant or pathognomonic characteristics of stasis contents, those characteristics which, occurring constantly or occasionally, as the case might be, in stasis, were never present in the normal or in other stomach disorders, so that their presence in a case might be significant in differential diagnosis, were: (1) The presence of an abnormal food residue; (2) The presence of sarcinæ; (3) The presence of lactic acid; (4) The presence of abnormal yeast fermentation.

An investigation of the records of the two sets of cases included in the research, the 26 stasis cases and the 154 no-stasis cases, including the 20 normal and 134 abnormal, in regard to these essential or special stasis characteristics, shows the following facts;

The first factor, the abnormal food residue in the fasting contents, was present in 24 of the 26 stasis cases. In 21 cases the food was macroscopically recognizable. In 3 cases recourse to microscopic examination showed the presence of masses of finely divided food particles.[4]

In 2 cases no food residue, other than the scattered particles which are found in normal contents (see below) could be determined. (These two cases were diagnosticated stasis, from the presence of some of the other signs given. One came to operation and the correctness of the diagnosis was confirmed by the anatomical finding of obstruction of the pylorus.) (Case 24 in table.) In the 134 no-stasis cases a distinct food residue, recognizable as such by the eye or microscope, was not present in any case.

The sediment of the normal fasting contents or that of diseased conditions without stasis may, under the microscope, show a few scattered starch granules or other food remnants. Such a finding should never be confused with an abnormal food residue, although of course a doubtful case may occur where a recourse of the determination of the other stasis factors is necessary to settle the question. A little practice in the study of the fasting contents in normal conditions and in conditions of disease will enable the student to differentiate between the few food particles which may occur in other conditions and the abnormal food residue of stasis.

In connection with this study of the fasting contents for food residue it should be emphasized that it is the quality not the quantity of the contents which is of significance in regard to stasis. It is true that the total quantity of contents in the fasting stomach in this condition is, as a rule, much in excess of the normal quantity of fasting contents, but quantities in excess of the normal are found in other conditions beside stasis. And in some cases of stasis the quantity of contents may not in single examinations exceed the normal. These points are well illustrated by my records. In this investigation I found the quantity of fasting contents in normal condition to lie between a few drops and 40 cc. Five cubic centimeters or more were obtained in all but 2 cases. Four cases had quantities over 30 cc. In the stasis cases the quantities ran from 20 cc. to 1,000 cc. Two cases only showed less than 40 cc. These 2 cases showed their finding on several examinations. Both contained food residue and both proved at operation to have some obstruction of the pylorus. (*Vid.* Case III in table.) In the cases of stomach disorder other than stasis, the quantities, as a rule, were within the normal limits. Quantities of 50 cc., 80 cc., 100 cc. were not, however, uncommon in simple cases of chronic gastritis or hyperchlorhydria. In some cases, those of hypersecretion, quantities of 400 cc. to 800 cc. were found. And yet all evidence of stasis was absent in these cases in the clinical findings, and in several of them the absence of cause for stasis was demonstrated by anatomical finding at operation. (*Vid.* Case VIII in table.)

The second stasis factor, the presence of large numbers of sarcinæ in the fasting contents, was present in 7 of the 26 stasis cases. Sarcinæ was found in none of the 154 no-stasis cases.

Examination in regard to the vital contents of the fasting stomach in my cases revealed the following facts. The contents of the fasting stomach in normal individuals (20 cases) was found to contain a certain number of low organisms including bacterial forms, cocci and bacilli and spirilli and yeast and other fungi.[5]

The character of the fauna and flora of the contents varied much in individual cases. In fasting contents containing no free HCl, and such contents are not uncommon in normal cases, the vital contents is apt to consist of numerous bacteria with an occasional yeast fungus. The number of organisms, especially in these hypoacid contents, is much greater than in the contents containing free HCl. In this latter group, an occasional bacteria and yeast fungus may be seen.

In the marked cases of stasis, cases with food residue, the number of lower organisms present is much greater than in the normal. So marked is this increase that the diagnosis of stasis could often be made by the microscopic feature, the finding of masses of bacteria or yeast alone.

In some cases of, stasis, however, as a rule the cases of less degree of obstruction, the numbers of these low organisms though increased over normal are not necessarily so increased that it is possible to make a positive determination of the presence of a pathological increase by the microscopic examination alone. With the sarcinæ, however, the case is different. This organism is not like yeast and the ordinary bacteria, a normal constituent of most fasting contents. It has been noted in small numbers in conditions other than stasis.[6] But its occurrence in noticeable num-

[4] In two cases I have found thick sediments of pus in the contents which could not, save by microscopic examination, be distinguished from a sediment of finely divided food particles.

[5] In connection with this subject, *vid.* Minkowski Mitt. aus der Med. Klinik zu Königsberg. Leipzig. 1888.

[6] Oppler: Münch. Med. Wochenschrift, 1894, No. 20.

bers is, in my experience, absolutely confined to this condition.

As this record shows, sarcinæ are but an occasional associate of stasis conditions. They are found most commonly in conditions where the secretion of hydrochloric acid is plentiful. Thus in all of my seven sarcinæ cases, free HCl was present both in the fasting contents and in the contents after a test meal. The test is important as serving as one extra means of determining stasis in addition to the most common means, the presence of a food residue. I have never found it positive in any case where the food test was lacking. It has, however, one advantage over the food test in the fact that in cases where it is present it can be determined in any contents whether a fasting contents or one after a meal or in vomitus. It may, therefore, sometimes enable the physician to make a diagnosis without recourse to the obtaining of a fasting contents.

The third stasis factor, the presence of lactic acid, was found in 8 of the 26 stasis cases. It was absent in all the 154 no-stasis cases. In all of the cases in which it was present a food residue was present also.[7]

The test for lactic acid utilized in this work is performed as follows: To 5 to 10 cc. of fasting contents add one drop of HCl.[8] Shake the mixture with 5 cc. of ether, draw off the ether and add the etherial extract to a very dilute solution of ferric chloride. If lactic acid is present a greenish yellow color will appear first at the junction of the ether and the iron solution and later diffused through the solution. Like the sarcinæ, this lactic acid finding is, as you see, only an occasional associate of stasis. It is commonly found in that class of retention cases in which there is a diminution or deficiency in the secretion of hydrochloric acid.[9] Thus in the 8 cases in which it was found in my research, free HCl was absent both in the fasting contents and in the contents after a test meal.

This lactic acid test for stasis is of diagnostic value only when it is found in a fasting contents. Here it matters not whether the quantity is influenced by the nature of the food taken, its contents of lactic acid or lactates, or is due entirely to fermentation.

Its presence in vomitus or contents other than a fasting contents cannot be given such significance unless it can be proven that no appreciable amount of lactates or of the acid (sarcolactic acid) was present in the food of the patient.

The third stasis factor, the presence of yeast fermentation, is tested for as follows:

Ten or twenty cubic centimeters of contents (according to the quantity obtained) is mixed with one half its quantity of sterilized 10% glucose solution. This mixture is placed in a fementation tube, absolutely filling the tube, and placed in a thermostat at 37° to 40° C.

Any apparatus for determining fermentation may be used in the test. I have in my work used a test tube of a capacity of 20 cc. in which a rubber stopper carrying a bent glass tube which reached to within one inch of the bottom of the test tube was inserted. The quantity of fermentation can be judged in such an apparatus by the amount of the mixture in the tube displaced by the gas formed in the fermentation process.

In performing the experiment, the mixture should be observed, if possible, first, twelve hours after the beginning of the experiment, then at eighteen hours, twenty-four hours and forty-eight hours, and the presence of fermentation as evidenced by the quantity of gas formation noted at each observation. If no gas formation or one of very slight extent, say 1-20 of a tube at most, is present after forty-eight hours, the result of the test may be considered negative. If a gas formation of more than 1-20 of a tube is present, the sediment of the fermentation mixture must be looked at under the microscope. If this sediment contains a numerous colony of freshly budding yeast spores, the result of the test may be considered positive and the presence of excessive yeast fermentation, that is of an evidence of stasis, affirmed.

Contents withdrawn from a normal stomach or from stomachs affected with disease where no interference with the emptying of the contents into the duodenum is present, have in no single case in my experience of over 180 contents studied by this method given a positive fermentation test according to the above standard. We do, in cases other than those of stasis, sometimes get by this test a *gas formation* of varying amounts up to ¾ of a tube in forty-eight hours. In fact, in fasting contents which contain no free HCl, it is the rule to get a certain amount of gas formation. But in all these cases, excepting those where stasis is present, the sediment is made up of bacteria, not yeast. In these cases apparently the bacteria swallowed from the mouth are sufficient to cause some fermentation of sugar without the provision of an opportunity for their previous multiplication in a food mixture offered by the condition of the abnormal retention. With yeast, however, this condition does not maintain unless some abnormal retention phenomenon exists, save, possibly, to the extent of allowing a very slight fermentation as represented by a few bubbles at the top of the test tube.[7]

This phenomenon of excessive yeast fermenta-

[7] Stagnation of some kind is essential for the development of abnormal fermentation processes in the stomach. As a rule the phenomenon means a disturbance of motor capacity sufficient for the existence of a food residue in the fasting contents. Case sare reported, — cases of cancer, — however, where a stagnation of bacteria existed sufficient for their multiplication without a stagnation of macroscopic food elements. The organisms were caught in the folds and rough surfaces of the neoplasm while the general motility of the stomach was preserved. Strauss (Zeitschr. f. klin. Med., Vols. xxvi and xxvii) reports such cases. This does not occur in all cases of neoplasm (see my records). The point is that it may occur in cases of neoplasm not situated at the pylorus. A positive fermentation test in our routine, that is a sarrina, lactic acid or yeast test in the fasting contents, therefore, indicates simple stagnation or stasis. Such stasis, as a rule, means stenosis at the pylorus. It may, however, mean simply atonic dilatation. If it is present and a food residue is lacking, it is due probably to a neoplasm of the wall harboring bacteria, butnot disturbing the motor function of the organ. *Vid.* Strauss: Deutch. Med. Wochenschrift, 1896, No. 38. Supplement.

[8] For absolute accuracy in the test for lactic acid the mixture of contents and HCl should be boiled to a syrup before extracting with ether in order to drive off any butyric acid which if present in quantity might give a test somewhat resembling the lactic acid test. In the test in connection with stasis however this boiling may be omitted as a test, for either butyric or lactic acid would be equally an indication of this condition.

[9] Lactic acid production by ferment action does not occur in the stomach in the presence of an acidity of .12%, total HCl (not free HCl). Strauss. Zeitschr. f. klin. Med., Vol. xxviii.

tion may, according to my records, occur in conditions where free HCl is absent, associated with an active bacterial fermentation also, or in those with much free HCl present. Case VII of my record gave this test and also the lactic acid test for bacterial fermentation. It is more characteristic, however, of cases where a combination of stasis with plenty of free HCl is present, those in which bacterial fermentation is not a feature. I have seen it where the quantity of free HCl equalled 0.20%, that is in hypochlorhydria. (See Cases V and XXIII.)

The yeast fermentation test has, like the sarcinæ test, one special value, namely, that it can be applied to a contents at whatever time it is obtained.[10] That is, we are not, in applying it, restricted to the employment of the fasting contents as in the case of the other tests for stasis, the food residue test, or the lactic acid test. It may, therefore, by the use of this test in emergency cases, as, for example, where a vomitus only is obtained or where it is difficult to arrange for obtaining the fasting contents, be possible sometimes to diagnosticate our condition without recourse to more elaborate preparation. It must be borne in mind, however, that the test, like the sarcinæ test, is not present in all cases of stasis. In some cases, for example, the fermentation is entirely of the bacterial type, the test for which is the lactic acid test in a fasting contents. So that the fermentation test must not be used for ruling out stasis, though it may always be used for ruling it in.

The reasons that the fermentation test cannot be used clinically for the determination of *abnormal* bacterial fermentation as well as of the yeast type have been already mentioned. It is because even a normal fasting contents may give a test for bacterial fermentation of ¼ to ¾ of a tube of gas. This occurs only in such normal fasting contents as contain no free HCl. A gas formation by this test has, in the great majority of cases, a significance only in cases where free HCl is present. A yeast sediment is significant, however, under all circumstances.

A positive yeast fermentation test was obtained in 18 of the 26 stasis cases. In some, the hypoacid cases, it was associated with bacterial fermentation. In the cases with free HCl an almost pure yeast sediment was the rule. Of the remaining stasis cases some showed only bacterial fermentation when subjected to the fermentation test, while others gave no test at all. These latter were, with one exception, conditions of extreme stasis containing excessive quantities of lactic acid in the contents. The presence of the lactic acid and of great masses of bacteria in the contents showed that some fermentation had occurred in the stomach. The failure of these contents to ferment in vitro I ascribe to an inhibition of ferment action brought about by the accumulated fermentation products before expression. The one exception was a case where the only contents obtained in three instances, were a few solid particles of food which on two occasions were obtained only by the use of wash water. (See Case III.) Here there was obstruction to the passage of large particles of food, but all fluid contents passed, so that no field for ferment action or multiplication of ferments was offered. The suggestion offered by this finding was that some growth was present near the pylorus, but not restricting its patency, which by its protuberance prevented large masses from coming to the opening, but allowed fluid contents to flow over it and through the pylorus. Upon operation this proved to be the case, a large fold of membrance puckered by an old ulcer cicatrix being present on the lower surface of the antrum pylori forming a pocket, but not restricting the actual opening at all.

The yeast fermentation test was found in two cases in which evidence of a food residue was lacking. One of these came to operation and showed obstruction of the pylorus of slight extent from adhesions. (Case XXIV.) Here all the macroscopic food particles were either entirely gone into solution or passed, a certain quantity of food in solution and its ferment content of yeast remaining.

From this record we may summarize our knowledge in regard to the special clinical findings of gactrecstasis as follows:

Of the four distinguishing clinical characteristics the presence of an abnormal food residue in the stomach, the presence of sarcinæ, the presence of lactic acid, the presence of abnormal yeast fermentation, the first, the presence of a food residue, is the most constant occurring in this investigation in 24 out of 26 cases. The three remaining characteristics are occasional factors. Thus sarcinæ were present in 7 out of 26 cases, lactic acid in 8, yeast fermentation in 18.

As none of these characteristics are present (according to the results of this investigation) in the fasting contents in any condition of the stomach other than stasis, the finding of any single characteristic in the fasting contents in a given case is diagnostic of the existence of this condition.

No one finding is present in all cases of stasis, and one of the findings may be present where another fails. Thus a yeast fermentation test was obtained in 2 cases where the test of a recognizable food residue was lacking; a food test and a lactic acid test were obtained in 5 cases where a yeast test was lacking; a food test was obtained in one case where all other tests were lacking. The condition of stasis cannot, therefore, be ruled out in any given case except by a routine application of all tests.

From these facts it is clear that our method of research for the determination of the existence or non-existence of stasis in a given case should be as follows:

The contents should first be examined for the presence of the most constant characteristic, the food residue. If this finding is positive, the diagnosis of general motor insufficiency or pyloric

[10] Strauss: Zeitschr. f. klin. Med., Vol. xxvii, reports a series of experiments with this test on contents obtained after test meals. The results give the same indications in regard to the value of the test which I obtained with experiments on the fasting contents.

obstruction is made, and no further investigation on this special point is necessary. If this test is lacking or doubtful, each of the three additional tests, the sarcinæ test, the lactic acid test and the yeast fermentation test, should be tried in turn. If any one of these is positive the diagnosis of stasis is still positive, though in this case the stagnation may be local as well as general.[7] If all four tests are negative the existence of stasis may be regarded as not proven.

I have dwelt upon these secondary tests for stasis, these sarcinæ and fermentation tests, for two reasons. The first is, that as one or the other may be sometimes present where the primary test for the condition, the test for food residue, is lacking, the routine application of these tests may result in the discovery of obscure cases which would otherwise be passed.[7] So far the number of cases in which I have found these tests where the food test was lacking is small. But however small the number, the fact is important, and I hope that the method may serve as a means of aiding early diagnosis of cases of cancer or other lesions of the pylorus, a subject in which our diagnostic ability is at present weak.

The second reason for giving these tests is that as some of these tests, as the sarcinæ or the yeast test, may be applied in any contents, whether a fasting contents or one obtained after a meal, a knowledge of them may often expedite diagnosis, enabling us to reach our conclusion in certain cases at once by the examination of vomitus or of contents after a meal, and thus make recourse to a further examination of a fasting contents unnecessary.

This is the method for the determination of the existence or non-existence of stasis (in the restricted use of the term here employed) which my study of stomach conditions has led me to adopt as a routine method in clinical work. I do not mean to imply that it is the only method of diagnosticating the condition, but simply that it is the best and most accurate one for all cases. Stasis may, for example, be diagnosticated in some cases by examination of the contents obtained at any time or from vomitus, without recourse to the examination of a fasting contents. If it is so diagnosticated by the finding of sarcinæ or of food taken on previous day, there is, of course, no necessity of further examination. A positive yeast fermentation test in a vomitus or digesting contents has the same significance. Cases of stasis are not infrequent, however, where the diagnosis can be determined by the examination of the fasting contents only. And the condition can never be ruled out without such an examination.

That this method can be relied upon to absolutely settle the question of the existence or non-existence of insufficient motility or drainage in all cases is not claimed. As stated in the introduction, lesser degrees of retention may exist which can be determined only by further study in the contingency where the condition is not demonstrated by this twelve-hour method.

I do claim, however, as a result of my experimental work up to date, that a positive finding by this method, as a constant or chronic phenomenon of a case,[11] indicates absolutely the existence of a serious affection of the capacity of the stomach to thoroughly empty itself of ingested materials.

In support of the statement, I have collected in a separate list the records of all my cases examined by this method described in which, as a result of operation or post-mortem finding, it was possible to determine the actual anatomical or pathological conditions present. In such a record we have an experimental test of scientific value in regard to the value of our clinical findings and of the deductions which can be drawn from them in regard to diagnosis of the actual conditions present. And by such a test only can the real value of our method of clinical procedure be determined.

The summary of the special record which forms this experimental test is as follows:

Among 180 cases included in my investigation, 39 came to surgical operation or post-mortem examination.

In these 39 cases, the test cases of our experiment, 21 had a clinical diagnosis of stasis and 18 a diagnosis of no-stasis.

In the 21 cases of clinical stasis an anatomical finding of obstruction of the pylorus, that is of an actual anatomical cause for insufficient drainage, was found in every case.

The actual pathological findings in these 21 stasis or obstruction cases were:

Cancer at the pylorus, 11 cases; ulcer at the pylorus, 9 cases; adhesions about the pylorus, 1 case.

In the 18 clinical no-stasis cases, the pylorus was found to be intact or patent in every case. The actual pathological findings present in these cases were:

Cancer of the stomach, 10 cases; ulcer of the stomach, 3 cases; chronic gastritis, 2 cases; no demonstrable lesion of the stomach, 3 cases.

That is, in the 39 cases of our investigation in which it was possible to obtain an actual test of the accuracy or the significance of our clinical finding, the finding of stasis (twelve-hour stasis) was discovered to be an associate and sign of a pathological lesion of the stomach of a serious character. Also, no lesions of the pylorus were found in any of the test cases which did not show stasis.

The testimony of this experimental record is, therefore, unanimous in favor of the accuracy and importance of the method of diagnosis. It gives us three indications of importance in connection with the study of stomach conditions.

These are: (1) The existence of obstruction of the pylorus in a given case can always be diagnosticated by a proper method of investigation.

(2) The clinical sign of stasis (twelve-hour stasis) as a *constant feature* of a case is always a

[11] The occurrence of a temporary attack of retention under nervous influences or in acute conditions of the stomach is not an infrequent event in a physician's experience. Such stasis phenomena are, of course, excluded in making this statement.

TABLE

	Number of Examination	Quantity of Contents	Abnormal Food Residue	Sediment Examination	Lactic Acid	Fermentation Test in Vitro	Free HCl in Fasting Contents	Free HCl in Contents after Test Meal	Physical Signs	Clinical Diagnosis	Findings at Operation or Post-Mortem
I	1	15 cc.	0	—	0	0	0.11%		—	Normal	Individual
II	1	20 cc.	0	—	0	0	0.13%	0.11%	—	No stasis (Neurosis)	Operation — Normal Pylorus patent (operation against advice)
III	1	15 cc.	Food	—	0	0	0.10%	0.13%	—	Stasis	Cicatrix in antrum pylori, causing large protrusion membrane
	2	20 cc.	Food	—	0	0	0.11%		—		
IV		40 cc.	0	—	0	Bubbles in 48°	0.06%		—	Normal	Individual
V	1	100 cc	Food	Sarcinæ	0	1 tube gas in 24° yeast sediment			Some dilatation	Stasis	Ulcer at Pylorus
	2	120 cc.	Food				0.19	0.16%			
VI	1	50 cc.	0	—	0	0	0	0.008%	Blood in contents	No-stasis	Cancer in antrum, very small, no metastases
	2	20 cc.	0	—	0	0	0	0.007%			
VII	1	1000 cc.	Food	Sarcinæ	0	1 tube of gas in 36° yeast sediment	0.11%	0.15%	Dilatation	Stasis	Cancer at pylorus on base of old ulcer
	2	600 cc.	Food								
VIII	1	500 cc.	0	—	0	0	0.21%	0.24%	—	No-stasis (Hypersecretion)	Ulcer anterior wall. Perforation and adhesion
	2	800 cc.	0				0.15%				
IX		60 cc.	0	—	0	0	0.22%	0.28%	—	No-stasis (Hyperchlorhydria)	
X	1	20 cc.	0	—	0	$\frac{1}{10}$ tube in 48° bacteria sediment	0	0.002%		No-stasis (Hypochlorhydria)	Operation for ventral hernia. Stomach examined, found intact
XI	1	20 cc.	0	—	0	$\frac{1}{10}$ tube in 48° bacteria sediment	0	0.11%	—	Normal	Individual
XII	1	500 cc.	Food	—	0	1 tube in 36° yeast sediment	0.08%	0.06%	Marked dilatation	Stasis	Ulcer at pylorus
XIII		75 cc.	0	—	0	$\frac{1}{10}$ tube in 48°	0	0	Tumor	No-stasis	Cancer of anterior wall
XIV	1	50 cc.	0	—	0	Bubbles	0	0.06%		No-stasis	Operation — chronic appendix. Stomach, no lesions found
	2	10 cc.	0	—	0	0	0.07	0.08%			
	3	25 cc.	0	—	0		0	0.07%			
XV	1	10 cc.	0	—	0	0	0	0.12%	—	Normal	Individual
XVI	1	400 cc.	Food	—	Present	1 tube 24° bacteria and yeast sediment	0	0		Stasis	Cancer at pylorus
XVII	1	30 cc.	0	—	0	$\frac{1}{10}$ tube in 48°	0	0		No-stasis	Cancer of lesser curvature
XVIII	1	400 cc.	0	—	0	0	0.002%	0.06%		No-stasis (Hypersecretion)	Cirrhosis of liver
XIX	1	30 cc.	0	—	0	0	0.07%	0.10%		No-stasis (Neurosis)	Stomach normal (operated against advice)
XX	1	200 cc.	Food	—	Present	0	0	0		Stasis	Cancer at pylorus
XXI	1	60 cc.	0	—	0	0	0.008%	0.07%		No-stasis Chronic gastritis	
XXII	1	10 cc.	0	—	0	0	0.11%	0.09%		Normal	Individual
XXIII	1	100 cc.	Food	—	0	1 tube in 36°	0.12%	0.10%		Stasis	
	2	200 cc.	Food	—	0		0.11%				
XXIV	1	40 cc.	0		0	1 tube 48° yeast sediment	0.18%	0.07	Slight dilatation	Stasis	Adhesions about pylorus
	2	100 cc.	0	Microscopic food	0						
XXV	1	70 cc.	0	Sediment of pus	0	1 tube 24° bacteria sediment	0	0		No-stasis	Cancer of wall with ulceration

sign of a serious condition (*vid.* the actual pathological finding in my case.)[11]

(3) Stasis is not, as a rule, an associate of even the serious stomach conditions as cancer or ulcer; unless the lesion is situated in the region of the pylorus (*vid.* pathological records of no-stasis cases).[7]

To further illustrate the facts and conclusions which have been determined from this investigation, I append a table of the individual records, the research of 25 of the 180 cases included in the investigation.

In each record there are, first, the results obtained by each test or step of the clinical procedure included in the routine method of examination of the contents of the fasting stomach utilized, and in addition a record of the test for free hydrochloric acid in a contents obtained one hour after an Ewald test meal, and some record of the results of the ordinary physical examination as the finding in regard to the existence of dilatation of the stomach or ptosis; second, the statement of the clinical diagnosis in regard to the existence or non-existence of stasis as deduced from these findings; and third, the record of the actual anatomical condition present where, as a result of operation or post-mortem examination, this condition was determined.

INDIVIDUAL FACTORS IN HYGIENE.*

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AND
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In the prevention and the cure of the vast majority of diseases known to us to-day, our main stay is general hygiene, which may be defined as whatever brings us into the best condition to resist disease.

But what will accomplish this end? What is positively known to-day about personal hygiene? We know a good deal more than we did about public hygiene, about water supplies, food adulteration and the like, but in regard to personal hygiene, diet, exercise, rest, bathing, we are now in one of those periods which occur not infrequently in any growing science, a period when we know considerably less than we used to, or rather, than we used to think we knew. Our venerated hygienic dogmas are being analyzed back into their constituent prejudices and superstitions and no new ones have yet gained currency or confidence.

Is hygiene a set of rules valid for all? A set of averages obtained by the erasure of individual differences? We think it can be shown that the only rules valid for all are so vague as to be almost useless. We can say that a man must eat something and sleep sometimes, but if we try to advance beyond these ludicrously vague generalities we find ourselves at once on very uncertain ground.

If, on the other hand, we try to state the matter in terms of *averages*, we are not likely to get any useful guidance for any particular individual. It is like averaging on a map the routes of all the transcontinental roads; the resulting line would run across the country and at about its middle, but would not afford you or me any assistance in finding the best route for our own travels, whatever they may be.

* Read in the Department of Health, American Social Science Association, May 12, 1905.

I.

Suppose you went to a general information office, such as Raymond's or Cook's, and asked: "What's the best railroad to travel on?" the clerk would very naturally reply; "That depends on where you want to go." The *individual desire* is the first and decisive factor, and to attempt to ignore it is folly. But the attempt to answer the question, "What railroad should I travel on?" without knowing where the questioner wants to get to is no more absurd than the attempt to tell a man the best rules of hygiene without first knowing what kind of life he wants to lead. "Good morning, Colonel," said a stranger on a visit in the South, "how do you feel this morning?" "How do I feel, sir?" said the Colonel, "I feel like the devil, sir, as every gentleman should, sir, in the morning."

Note the individual factor in the colonel's hygiene, the individual modification imposed on his rules of living by his general ideal of the position of a gentleman. This is the first of the individual factors in hygiene to which we wish to direct attention, the factor introduced by the man's aim in life, the destination at which he wishes to arrive. Knowing that a man wants to go to San Francisco as cheaply as he can, you may be in a position to offer him some advice as to the best means of fulfilling his desire; otherwise it would be absurd to try to advise him. "If you want to get the most work out of yourself and keep yourself always at your best, I should advise you not to drink and smoke." "Oh, but I don't care at all to get the most work I can out of myself," your patient may (and not infrequently does) reply, "I want to have more variety, more fun in my life; I don't want to be a mere working machine."

Hygiene, then, is a branch of ethics and, like ethics, finds the ultimate warrant for its "*Thou shalt*" and "*Thou shalt not*" in the ideals of the individual.

II.

A second set of individual factors becomes obvious as soon as we begin seriously to consider the differences of race, climate, occupation, age and sex. This is more familiar ground. We are pretty well accustomed in our practical dealings with patients to modify or restate the traditional canons of hygiene in accordance with the differences just mentioned. We know in a general way that the hygiene of men differs from that of women, and we have begun to recognize a hygiene for children that takes account of other differences besides those of weight. We recognize (though our school boards do not) that young children ought to be allowed a very large amount of running about, climbing, yelling and other

exercises of large groups of muscles rather than the minutely focussed activities that "wag the tongue and wag the pen," as Stanley Hall says. Yet we recognize that the same amount of violent exercise would probably be bad for an adult and that, at any rate, no adult except a maniac would attempt it.

Further study will, we believe, carry these distinctions much further. We shall grow to be less local, less parochial in our views of hygiene. We shall probably recognize a hygiene for Caucasians, a hygiene for Orientals, a hygiene for brain-workers, a hygiene for adolescence and one for those who have reached Osler's age of chloroform; very possibly, also, one for San Franciscans and one for New Yorkers. All this is more or less a matter of guess work and prophecy, but already our knowledge has gone far enough in this direction to make some of the textbooks of hygiene smack ludicrously of the town that produced them. The German textbooks are unmistakably German in their point of view, and yet undertake to dogmatize for us all; no doubt ours sound as strange to them.

We shall allude but for a moment to the extraordinary disregard of individual differences that is apt to afflict those physicians who are themselves strongly individual in their hygienic habits. The physician who finds that coffee disagrees with him is apt to preach a crusade against all users of coffee and proclaim it rank poison. The doctor who happens to need no exercise is tempted to assume that all exercise is a fad, and so on.

But we pass at once to another class of differences, dependent not like the first type on one conscious ideal of life nor like the second on environment and circumstances, but on certain characteristics which seem to be *inherited*, yet which we are often very backward in discovering. We shall try to exemplify some of these differences in each of the following functions:

(1) Sleep; (2) Waking up; (3) Work; (4) Rest; (5) Exercise; (6) Food; (7) Tests of Health.

(1) *Sleep.* — (*a*) The average Caucasian has come to take his sleep in one dose and his food in several; but the American Indian often takes his sleep in divided doses and sometimes takes his food in one. Here is an interesting individual difference. How common each of the two methods is seems to us a question on which considerable statistical study might profitably be spent. Some persons habitually wake up in the night, get up, do a bit of work, and then go to bed again. The mid-day siesta, so commonly taken in the tropics, is another example of divided doses of sleep. (*b*) The total dose of sleep necessary is a matter on which there is, so far as we are aware, very little statistical information. It is a common belief that women need more sleep than men, but it is hard to find a statistical backing for that statement. (*c*) Preparations are generally necessary for good sleep. Certain persons, if they are to sleep well, must arrange that the vigor of their activities shall taper off and not rise in a crescendo as the evening goes on. Others do not find this so. There are many other interesting questions about sleep to which we have no time to allude here.

(2) *Waking up.* — One of the most interesting individual differences concerns the simultaneity or lack of simultaneity with which the different organs wake up. In some persons the brain seems to wake before the stomach; in others the stomach gets ahead of the brain, while some persons wake all at once. Some have to wake their systems up by using dumb-bells, some by a cold bath, some by drinking coffee, some by work. Habit, of course, plays a large part. One who is used to breakfast at eight and is forced to breakfast at three or four may find that his stomach is not awake, and being unready for its work does it so badly that indigestion results. It seems likely that the rise of the "no breakfast" idea is due to the fact that some persons' stomachs (or general metabolic processes) cannot be awakened except by work; it is probably a matter of individuality, but we need a great deal more statistical evidence on this point.

People differ much in regard to the time of day at which they become so thoroughly wide awake that they can do their hardest work. Whether a brain-worker should do his hardest in the morning or later in the day is a matter which we hope to investigate statistically and in comparaton with tasks of other kinds. It is said that marksmen shoot more accurately after luncheon than before.

(3) *Work.* — We think it is not sufficiently realized that work is a great, if not the greatest, factor, in keeping us well. Physicians sometimes tell a man to give up work without realizing that they are compelling almost as serious a change as if they told him to give up eating. To take away a man's work is almost as serious a thing as to take away his food. We may feed a man by some other channel. So may we send him on a vacation and try in this way to take the place of the nutrition that comes to him by work, but good working of the organism is not always secured in this way. It may be as hard to fit him to loafing (and as unnatural) as to rectal feeding. My convalescent patients sometimes say: "I don't feel fit to work," and the answer is "You will never be fit to work if you wait till you feel like it. The only thing that will make you feel better is the tonic and stimulus of getting to work." This is true not merely in neurasthenic cases. Balfour, the present Premier of England, was miserable physically until he was induced by a wise physician to take up his present strenuous work.

(4) *Rest.* — Of the many problems about rest and recreation we shall cite but one. Persons may be divided into two classes, expressing individual differences, according as they can rest by change of work, going from one work to another, or cannot. We know of nothing more important than for a man to find out early in life to which of these classes he belongs.

(5) *Exercise.* — Almost all doctors prescribe exercise. How many healthy doctors ever take

any? Did it ever occur to you to ask whether there is any word in any language other than English which really corresponds to "*exercise*" in our sense? We can think of none in French, German or Italian, and we are interested to know whether exercise, like athletics, is an Anglo-Saxon peculiarity. Other languages have words that seem to translate it after a fashion, but not very precisely. If this is true it is a very important thing to take account of.

Health and Muscle. — Some of the older men here may remember Bleakie's book, "How to Get Strong," a book much in vogue fifteen years ago. It dealt with the question of exercise, and dealt with it on the assumption that to "get strong" is the same thing as to develop muscle. In fact the book should have been entitled "How to develop muscle." But we know that a man may develop muscle to any extent and yet have no health. We knew a man in college who developed by gymnasium work the most extraordinary set of muscles that we have ever seen, except on Sandow, yet he was never well or healthy and never could put through any piece of prolonged hard work, mental or physical.

Now as soon as we realize that to be strong and healthy is not the same thing as to increase the size of our muscles, the individual element in exercise becomes more and more prominent. If one could prescribe gymnasium exercise to increase muscle and thereby health, the individual element could be largely disregarded, but when you recognize that the muscular individual is not necessarily healthy, the individual element in the choice of exercise comes to the fore. Some persons enjoy pulling chest weights, and are benefited by it, perhaps because they enjoy it, but the vast majority of people would rather be put to penal servitude than pull chest weights, and in such persons it certainly may do harm. We need to take the crude product we call "exercise" and analyze out of it what is of value. We believe that the more fully it is analyzed the more the individual factor will be recognized. Is it deep breathing, vigorous heart action, profuse perspiration, that is that invaluable element? Is it relaxation, enjoyment, change of mental attitude? Is it the amount of fresh air breathed in? One thing we do know to be true in most persons, *viz.*, that in valuable exercise there is *no self reference.* Attention is turned away from self. In exercise which you enjoy that is the case. But many exercises (as, for example, the Swedish system or any other system of gymnastics, calesthenics, etc., that is done *for exercise* and not for fun), direct the person's attention to himself, and thus in a very large proportion of cases neutralize any possible good to be accomplished through them.

(6) *Food.* — First, in regard to the amount. The vast majority of us have the idea that when the patient is run down we should feed him up. But the recent investigations of Professor Chittenden should certainly make us more doubtful of the value of feeding persons up. Professor Chittenden has shown that Voit's diet tables can no longer be regarded as standard for all persons. Some persons on a diet containing a very much smaller amount of proteid and of a lower calory value do not only as well, but apparently much better. We are not arguing that the diet used in Professor Chittenden's experiments is right for all of us, but merely that he has directed attention to individual differences. Apparently, certain persons are better off on what is practically a vegetable diet. Let those who find it to be good for them adopt it, but they need not mount to the house top and proclaim that every one must follow that diet or be damned.

The brilliant work of the Russian physiologist, Pawlow, emphasizes again in another way the same point; he shows that gastric juice will flow freely if the animal likes the food presented to it, and will not flow if it does not like it.

In regard to the use of water, many rules seem to be constructed in the following way: A person comes to us, in ill health; we find that he drinks very little water. We prescribe water; he gets better and we then formulate the rule that the ordinary man should drink more water. But if we investigate not the hygienic failures who come to doctors, but the people who are strongest and healthiest, we should find that many of them drink very little water or liquid of any other kind whatever, very much less than we, as physicians, are in the habit of saying that people must drink to be well. We believe that this is an individual matter, and that no invariable rule can be laid down.

(7) *Tests of Health.* — We are very much in need of tests of the degree of health, tests that will show a "healthy" person how far from the danger point he is. In such cases we think that individual differences will be found to count a great deal. Some persons are to be considered well if they eat well and sleep well and feel well. For others these tests are not sufficient. We have noticed in quite a number of persons that information of some value can be obtained by noting the degree of infection of their hangnails. Everybody has some hangnails, but when the individual is below par, they begin to get inflamed. Another possible test is the condition of the reflexes, some of the minor reflexes especially. In the last report of Phipp's Institute for Tuberculosis there is an account of the reflexes of tuberculous patients, especially the hypothenar reflexes. We have watched in ourselves for some time the condition of this reflex as compared with our own general condition, and are beginning to watch it in some other persons too. Perhaps certain individuals can measure their condition by noting the condition of their reflexes. One of us finds that when he loses sleep or is overworked this hypothenar reflex comes out very prominently; scratching the ulnar side of the forearm with a pencil makes the abductor minimi digiti stand out. When he is in firstrate condition the reflex cannot be elicited.

We hope that we have done enough to remind you of a large body of facts which indeed are common knowledge (or common ignorance), but

which are not always in that foreground of our minds whence action issues. These facts exemplify the individual variations dependent on:

(*a*) Our chosen plan of life.

(*b*) Our environment, age, sex and occupation.

(*c*) Our inherited or acquired temperament, taste and bent.

(*d*) The selective bent of our individual tissue, which makes the amount and kind of rest, exercise, food, sleep, suit us as they do no one else.

III.

Now are these differences of individuality such as to preclude the possibility of framing any set of requirements for health, such as our hygienic books have usually contained? A "required course" for health, we answer, like required courses in college, will soon become extinct, but a group-elective system will remain. From among a group of possible ways of being well each man will have to choose one by instinct and experiment. For example, you belong either to the group of those who can rest by change of work or to those who cannot; instinct and experiment will enable you to judge. You are either a no-breakfast man, or you are not, and so on.

To work out the actually existing and practicable methods of keeping well, at or near which each man is likely to live, is the job to which we propose to devote a good deal of time and money during the coming years. We propose to collect, if we can, the statistics of the actual habits of 50,000 healthy Americans, the healthiest that we can get in touch with through physicians and other intelligent persons in different parts of this country.

How has hygienic success been actually achieved? What methods of keeping well are the most often successful in this country at the present time?

Imagine, for example, that statistics should show that 80% of healthy Americans eat three meals a day, 5% eat no breakfast, and 4.5% no lunch, while only ½% skip the evening meal; it would hardly be worth while to experiment much with a no-dinner plan, but one would want to find out by experiment whether one is better without breakfast or without lunch. If it should turn out to be true that one half the healthiest people to be found eat meat but once a day, while a third eat it twice and the balance three times a day, one would wish to try these experiments, but would not consider it worth while to try eating no proteid whatever, nor making one's diet exclusively proteid.

In Colonial days, when our race was more homogeneous and the range of our possible activities more limited than they are now, the variety of hygienically successful methods of living may very well have been fewer. Just as all gentlemen were in Colonial times of one religion and belonged to but two or three professions, so it may very well have seemed as heretical to speculate or experiment in hygiene as in religion. Authority decided such matters.

Now, with the freedom of conscience and the right of private judgments in politics and religion, are coming, we believe, the right and the duty of the individual layman to prevent disease by working out for himself his own method of keeping well.

Anyone who has watched himself carefully must have noticed how sharp and clean-cut his individual limits are. You can walk easily for miles just inside your individual limit of strength, but if anyone pushes you even a little way beyond it, you are tired in fifteen minutes. Yet it will tire you almost as much to have to hold your pace down to that of a slower walker as it would to hurry after the champion pedestrian. By instinct and experiment you find your proper pace and then it varies little for years. So it is with sleep, food, recreation. You can work for months just within your normal sleep limits, but if you cut down sleep even a half hour a night below your limit it will show at once in the *quality of your work* if not in more obvious forms of ill-health.

The individual's best path of life, then, is sharply marked out and not difficult to determine. *But it may be almost impossible for any outsider to determine it even if the outsider is a physician.* Suppose some one else tried to decide for you how fast you should walk, what the natural swing of your gait should be. He might by very careful and constant observation of your various paces come fairly near the right one, but it would be a great waste of energy for a result only approximately correct.

The individual should be urged to find out for himself how to keep well. We count it a great misfortune or disgrace if an American arrives at manhood without knowing the three R's, but it needs only a little reflection to make us realize that it is a far worse calamity to grow up without knowing what rests you, whether change of work is your best recreation, whether you are better with a low proteid diet, a low or high intake of water and what your *vocation* or hobby is.

Have you not sweated blood in the attempt to discover for a man of forty what his proper *avocation* is, or for a woman of thirty-five what is her proper work? And as you labored has it never aggravated your toil to recognize that this job should have been done by the patient himself years before?

To find out for another man how he ought to live is as awkward as to tie his necktie for him. You *can* do it somehow or other, but he can feel his way and adjust his motions much more accurately himself.

The individual factors in hygiene, then, are so many and so essential, that in the great movements of preventive medicine it is the layman who, with some general guidance, must work out the salvation, that is the best hygiene of the future. We are often told that doctors should prevent disease instead of trying to patch up the poor wrecks who exemplify the hopeless results of long years of hygienic failure. But we cannot believe that the most important work in this line can be done by the doctor; it is a waste of energy for him to attempt it in most

cases. Moreover, the educated layman will more and more resent the attempt. I think it will not be long before it will be held as presumptuous for us to attempt to prescribe by general rules a man's best way of living, as it would be for us to prescribe his wife, his profession, his political or religious opinions. Private judgment and unwillingness to submit to authority will spread to this sphere, nay, have already spread far in that direction.

We will recur for a moment to our own plans. Our belief is (as we have tried to indicate) that the hygiene of the future will be not a series of commands, "Thus do or thou shalt die," but a *map* showing a number of practicable roads, each preferred and found satisfactory by a group of persons of a certain build, a certain ideal of life, a certain inherited and acquired set of the tissues. "On or near some of these roads," we shall say, "you will probably travel. Look them over as you do in choosing a profession, a house or a town to settle in. Find out which suits you best; then take it."

Now, our ambition is to assist in the construction of this map, to find out by the collection of an enormous body of statistics of healthy people what workable sets of habits now exist in regard to food, water, exercise, sleep, work, recreation and the rest. Such a map of passable roads will not bind the individual to walk on any one of them, but if he wishes to roam in the fields or ditches he will at least be conscious of what he is doing and where the ordinary roads are if he cares to return.

To collect the body of statistics on which such a map could be based will need the coöperation of many intelligent persons all over this country, and later we shall be asking members of the profession to coöperate with us in the task.

THE EFFECTS OF TOBACCO UPON THE THROAT.*

BY G. W. LANGHAID, M.D., BOSTON.

I HAVE been induced to write this short paper because my experience of the evil effects of tobacco on the throat, especially by smoking, has been contrary to what is generally taught in textbooks, and because very little has been written on the subject and no record of clinical observations has come under my notice. The subject has generally been dismissed with an opinion for which no good reasons were offered.

For many years I have been compelled to believe that smoking is responsible for certain forms of throat disease, or is an added factor in the injurious effects of climate.

I must acknowledge that my observations have been made in a cold, moist climate, such as exists in winter all along the seashore of the northern United States, and may not hold good in other, warmer or warm-moist climates. Indeed, I am inclined to believe that such is the case. But should it be urged that climate alone might be considered responsible for the affections of the throat, I might reply that until tobacco is abandoned there is very little or greatly delayed response to treatment.

The condition of the throat which I have observed is that so exhaustively treated and so truly described by Bosworth in his chapters on acute naso-pharyngitis and naso-pharyngeal catarrh. Bosworth, although admitting that tobacco may be an irritant to the pharyngeal mucous membrane, says that he "has always considered the nicotine absorption to be the vicious factor in its use." He admits that the ammoniacal vapor and possibly the small quantity of pyroligneous acid may act as irritants, and that it is frequently noticed that a patient suffering from naso-pharyngeal catarrh is greatly inconvienced and his trouble even aggravated by smoking, and that in such cases it is necessary that the habit should be abandoned. But, he says, "the cases are the exception rather than the rule." My belief is that in all cases of acute and chronic naso-pharyngitis smoking must be abandoned or the cure is delayed. Especially is this the case if cough is a prominent and distressing symptom.

Diseases of the nose and throat. — Although I believe that much of the hyperemia of the pharyngeal mucous membrane may be due to irritation of the smoke from the burning tobacco, I am forced to believe also that the poisonous effects upon the nervous system may be to a large extent responsible for the vasor-motor disturbances which are plainly visible in the throat of all smokers. I believe that most of us could hardly make the mistake of not recognizing by the appearance of the throat the non-smoking man even if he should not apply to us for treatment of a naso-pharyngitis. It has been my custom to make such a diagnosis greatly to the astonishment of the patient. Furthermore, I think the appearance of the throats of most female patients will be noticed to be unlike that of men even when the pharyngeal mucous membrane is acutely or chronically diseased.

I am inclined to believe that it is largely due to the poisonous action upon the nervous system that tobacco plays such a part, as it seems to me, in producing and perpetuating disease of the throat. The following extracts from recent articles on the action of excessive smoking upon the organs of special sense may seem to you to afford justification for such an assumption.

Possible etiological factor in tobacco. Alcohol amblyopia. — "G. E. de Schweinitz and Edsall[1] attempt to throw some light on what the possible poison may be which produces one or the other of the many changes which have been described by many authors in the optic nerve fibres, or the ganglion cells of the retina, and which manifest themselves by the clinical symptoms."

"Horner, long ago, and de Schweinitz, 1900, suggested that the disease depended on a species of auto-intoxication, and the investigations of Sachs and Casey Wood indicate 'that certain stomach toxins are capable of causing in animals

* Read at a meeting of the American Laryngological Association at Atlantic City, N. J., June 3, 1904.

[1] Trans. Am. Ophth. Soc., 1903.

blindness, probably of the type now under consideration.' In seven there were evidences of marked disturbance of digestion or metabolism or of both."

Tobacco nerve deafness.[2] — Wyatt Wingrave gives the results of his observations of seventeen cases as follows: (1) "That they were all well marked cases of nerve deafness (unattributable to other causes) occurring in heavy smokers. (2) That the loss of low tones in 50% suggests an auditory equivalent for a recognizable ocular lesion. (3) That the disease was symmetrical. (4) That there was an impairment of color sense in eight of them, and definite scotoma in four cases. (5) That 80% showed marked improvemeat on abstinence from tobacco supplemented by drug treatment; three were cured.

"*Tobacco smoking.* — Besides nicotine, tobacco smoke contains nicotianine, collidine and other pyridine derivatives, acids, resins, carbon dioxide, prussic acidand ammoniacal salts. Two drops of nicotine placed on a dog's tongue produce, in succession, efforts to swallow, great weakness, convulsions and death, in less than a minute. Eight drops will kill a horse. Tobacco contains from 2 to 8% of nicotine and Le Bon has determined that though most of this is changed in smoking, it appears as other pyridine bodies which are just as poisonous."

Petit[3] finds "that these bodies do not condense much in the warm mouth, so are mostly exhaled, therefore the physiological effect of ordinary smoking is not a marked one. Susceptible persons may, however, be much affected by breathing the air of a room in which there is much tobacco smoke.

"*The poisonous constituent of tobacco smoke.* — The gaseous products of the incomplete combustion of tobacco, whether it be smoke in the pipe, cigarette or the cigar, are so complex that the question, To which constituent are the toxic effects of tobacco smoking precisely due? remains unanswered. Of course, it is well known that nicotine is a powerfully poisonous constituent of tobacco leaf, but it is by no means certain that the alkaloid reaches the system by way of the smoke in sufficient quantities to act seriously as a poison. To begin with, the amount of nicotine in tobacco is very small, and there is reason for believing that the quantity given in previous analyses has been considerably over-represented; moreover, though a volatile poison, nicotine does not occur in the free state in tobacco, but as an organic salt, which is not volatile, and which probably breaks up readily on combustion. It is doubtful whether a seventh part of the total nicotine in the tobacco reaches the mouth of the smoker, and some investigators deny that any nicotine occurs in tobacco smoke at all. But assuming that nicotine is the toxic constituent of smoke, the quantity must be quite minute, since in most mild tobaccos the proportion is rarely over 1%. On the other hand, the incomplete combustion of tobacco gives rise to the formation of aromatic compounds, oils, bases, amines and gases, some of which are undoubtedly poisons, and these are obviously produced in a far larger amount compared with the quantity of nicotine in tobacco.

"In this connection too little attention seems to have been paid to the relatively large quantity of the poisonous gas — carbon monoxide — in tobacco smoke. When the insidious nature of the gas is considered its absorption in the system, which must be very rapid when inhalation is practiced, would sufficiently explain the train of poisonous symptoms which excessive smoking is apt to set up. In some particulars the physiological action of nicotine and carbon monoxide is similar. The dizziness and stupor, the trembling of the limbs and the hands, the disturbance of the nerve centers and the circulation, palpitation on a slight effort, and the feeble pulse may be the indications of either carbon monoxide or nicotine poisoning. But since one ounce of tobacco gives no less than one fifth of a pint of pure carbon monoxide gas when smoked in the form of cigarettes — and probably as much more in the form of cigars or in pipes — it is not improbable that to a very large extent these symptoms are due to the carbon monoxide.

"We have recently tried the following instructive experiment which bears upon this point: Two or three mouthfuls of tobacco smoke from a cigarette were shaken up with a few drops of blood diluted with water in a bottle. Almost immediately the blood assumed the pink color characteristic of blood containing the gas, and further observations with the spectroscope confirmed the presence in the blood of carbon monoxide. Similarly a few mouthfuls of smoke from a pipe and a cigar were tried, and the results were even more marked. In this experiment we have some explanation in particular of the evil effects of cigarette smoking, for it is chiefly cigarette smoke that is inhaled — an indulgence by which the poisonous carbon monoxide is introduced directly into the blood. This effect of tobacco smoke upon the blood appears to be of considerable significance." — *Lancet*, Jan. 2, 1904.

The above statements seem to offer sufficient evidence of the poisonous action of excessive smoking upon the nervous system. The ophthalmic and the aural surgeons have never doubted their effect upon the organs of special sense.

Clinical evidence, is to my mind, sufficient to prove similar action on the throat. The smoker is never quite free from a form of naso-pharyngitis, and sooner or later a mild form of tracheitis appears and becomes chronic. The naso-pharyngitis may reveal itself by the necessity for frequent hemming, or, as frequently occurs, by a morning cough which in some cases is so severe as to cause vomiting which is frequently ascribed to "catarrh of the stomach."

Not infrequently when the naso-pharyngitis becomes acute, as it frequently does in winter, a most distressing night cough appears, convulsive in its nature and resembling the constantly repeated cough of the child with naso-pharyngeal

[2] Ann. of Otol., Rhinol. and Laryngol., September, 1903.
[3] Le Progrès Médicale, Nov. 28, 1903.

adenoma. The cause for such a cough is not suspected by physician or patient, and demulcent medicines having been found inefficacious resort is had to opiates with the result of destroying the patient's digestion, and the usual systemic disturbances follow.

I have frequently found that the cough would quickly disappear if smoking was discontinued, internal medication being limited to the giving of a placebo, but if the smoking was continued, or not materially lessened, the cough would continue, or, with intermissions, return during a period of months.

But I would call attention especially to the effect of tobacco upon the throat and voice of singers. I have refused for many years to treat the throat of singers and public speakers where smoking was not discontinued, since I believe that treatment which otherwise would be efficacious would be of little avail.

The specialist is frequently consulted by a singer or actor for hoarseness which prevents a public appearance. The pharynx and larynx are hyperemic, the secretion of glutinous mucus is excessive, but the real reason for altered quality of voice or its extinction is found in the paresis of the intrinsic laryngeal muscles. Either one or both vocal bands are relaxed and the upper register of the voice is lost. In such cases a few days or hours of rest of the voice and the treatment which any skilled specialist would apply would be sufficient to restore the voice to a working condition. But the patient must be told that unless he ceases to smoke relief will be delayed. If it should be said that such a condition may result from over use of the voice or from climate, or both, I shall certainly agree, but would yet maintain that smoking not only helps largely to provoke such attacks, but that it retards the restoration of the vocal ability.

I believe, then, that tobacco smoking is not only harmful to the throat as a direct irritant, but that it produces vaso-motor disturbances of the pharyngeal mucous membrane by its poisonous effects upon the nervous system.

One can be materially aided by stopping smoking for a time. I have found this method of treatment to be productive of good results in many cases.

With regard to the effect of tobacco upon singer's voices, I have known several singers who have tried to smoke when the throat was affected, bnt who were obliged to give it up. I am willing to admit, however, that deep voices, such as baritone, bass, or contralto, are not so easily affected by tobacco smoke as are the higher voices, *viz.*, the tenor and soprano, since the beauty of tone in the lower pitched voices does not depend, for reasons foreign to the scope of this paper, upon the absolute integrity of the vocal bands.

Five Years of Medical Study. — It is stated that an optional fifth year will be offered at the Rush Medical College in affiliation with the University of Chicago, with varied possibilities of study, including an interneship under certain modified conditions.

STUDIES ON EPILEPSY.*

BY ARTHUR MORTON, M.D.,
AND
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TREATMENT OF STATUS EPILEPTICUS.

BY ARTHUR MORTON, M.D.

Last year an article was written describing the treatment of status epilepticus at the Massachusetts Hospital for Epileptics. During the past year, the same general line of treatment has been carried out. We have, however, been especially interested in the use of a sterile solution of sodium bromide given hypodermically and in lumbar puncture. The consideration of these two agents will form the basis of this article.

In the use of a sterile solution of bromide, we feel that we have a very valuable method of treatment of status. Last year we could report on only four cases; but during the past twelve months we have used it in many cases and generally with good results.

We experimented for several months with the different bromide salts and with solutions of different strengths, and finally came to the conclusion that the best results were obtained with a solution of the sodium salt of the strength of 30 grs. to the ounce. Stronger solutions than this are too irritant and are apt to produce abscesses. The solution even in this strength should never be injected in large quantities into the thighs or breasts. Out of several thousand injections of this solution, we have had but two abscesses and these occurred after about an ounce of the solution had been injected into the thighs. We have, however, had several cases of sore and indurated breasts. The induration rapidly disappeared under the use of a glycerine poultice and none of the breasts suppurated.

The site we select for the injection is on the back just below the angle of the scapula. Here several ounces of the solution may be injected without fear of abscess formation.

Some authors recommend the use of a 10% solution of sodium bromide; but we have found that this is much too strong and very apt to produce abscesses or painful indurated areas. Other advantages that might be mentioned in favor of the weaker solution are its diuretic and stimulating effects. In these respects its action is much the same as that obtained by the subcutaneous use of normal salt solution.

The amount of bromide injected varies in different cases; frequently 60 to 100 grs. will control the convulsions; but we sometimes have to inject 180 grs. or 6 oz. of the solution before the desired result is obtained.

The earlier in a case of status the injections are commenced the better. Perhaps the most useful purpose of this solution is in aborting threatened attacks. During the past year we have given directions to the head nurses that if certain patients, who are apt to have series of convulsions

* The following papers were read in part at the Annual Meeting of the National Association for the Study of Epilepsy held in Boston, Nov. 22, 1904.

or to develop status, have two convulsions in succession they shall at once receive ten hypodermics, twenty minims each, of the sterile sodium bromide solution. In this way the patient receives about 12 grs. of the salt early in the attack. If the patient continues to have convulsions, ten of the small hypodermics are given after each convulsion until the patient has received forty injections with the small syringe. These injections may be given in any part of the body for, so far as we have been able to observe, they never give any trouble. This plan of treatment we feel sure has warded off many attacks of status which would have developed if we had followed the old plan of giving drugs by the mouth.

If the patient continues to have convulsions after having received forty of the small hypodermics, the nurse calls the physician and from 1 to 4 oz. of the solution are injected into the tissues of the back. For these last injections, a large antitoxin syringe is used.

We do not wish it to be understood that we claim that the use of this method will control every case of status; but we have found that in the majority of cases, we can control the convulsions, especially if the injections be begun early.

The use of lumbar puncture in cases of status has been tried in seven cases with varying results. Three of our cases died while the other four recovered. In none of the cases was it used during the first of the attack; but only after repeated injections of sodium bromide and other agents had failed to control the seizures.

Four of the cases showed a marked improvement after the withdrawal of 10 to 15 cc. of cerebro-spinal fluid. While in the others, there was little if any permanent effect obtained. In five of the cases the fluid was under increased pressure.

In one of the cases 20 cc. of the fluid were withdrawn after which 10 cc. of sterile sodium bromide solution, 30 grs. to the ounce, were injected into the subdural space. The patient, who had had twenty-five hard convulsions up to the time of the puncture, ceased having them and had only one more in the next fifteen hours.

While our results have been varied, we feel that lumbar puncture may serve a useful purpose in the treatment of status especially in those cases that have increased intracranial pressure. Whether the subdural injection of a solution of bromide will prove a success remains to be seen. It certainly seemed to do a great deal of good in the case in which we tried it. We feel that the earlier the puncture is performed the better will be the results.

REFLEXES IN EPILEPSY.

BY ARTHUR MORTON, M.D.

WE have attempted during the past few months to study the knee jerks and plantar reflexes in patients directly after they have had an epileptic fit.

In looking over various articles on epilepsy, we find that most of the authorities have little to say on this subject.

The following are a few quotations from various well-known writers:

"Transient increase of the patellar reflex, transient albuminuria and violent vomiting are common after epileptic attacks." — *Dr. Ludwig Hirt.*

"After an attack the reflexes are sometimes absent; more frequently they are increased and the ankle clonus can usually be obtained." — *Dr. William Osler.*

"For a few minutes the state of the spinal cord may be such that the knee jerk cannot be obtained. When it returns it is excessive, apparently from the lack of higher restraint. It lasts longer on the side most paralyzed, that is, the side towards which the head has been turned in the fit." — *Dr. W. R. Gowers.*

"The cutaneous reflexes are suspended directly after an attack, but the tendon reflexes are generally somewhat exaggerated, although sometimes they also are diminished or absent." — *Dr. Adolf Strümpell.*

"The reflexes are abolished during the attack (the conjunctival and corneal reflexes also, and particularly the pupillary light reflex), the knee reflexes being also absent (if they can be tested at all) though they may be normal or exaggerated. — (*Sternberg*). This loss of the reflex excitability may last somewhat longer than the attack." — *Dr. H. Oppenheim.*

We have been able to obtain the knee jerks after twenty-seven hard convulsions occurring in twenty-two different patients; also the plantar reflex after twenty-four hard convulsions occurring in twenty-two different patients. Most of these patients could be classed as suffering from idiopathic epilepsy. There were only a few who were hemiplegic.

The tables on next page show our results:

It will be noted that the knee jerks in most of the cases are active between convulsions. In a number of cases directly after the convulsion this reflex was increased markedly. Ten minutes after it was still found increased in some of the cases and the same condition was observed thirty minutes after the convulsions. In some of the other cases, the knee jerk was found to be either absent or not active directly after the convulsion. Ten minutes after, most of these cases seemed to have regained their reflex activity.

This reflex is always increased more on the side of the body that takes a more prominent part in the convulsion. We attribute the increase of the knee jerk to an increased irritability of the secondary and possibly of the primary reflex arcs and to a lessening of the inhibitory influence of the secondary reflex arc. In those cases in which the knee jerk is diminished or absent an exhaustion of the cortical motor cells and of the motor cells of the cord would seem to be indicated.

The plantar reflex in most of the cases was found to be absent or not active directly after the tonic stage, probably due to the unconscious condition of the patient. In the state between the convulsions this reflex is often quite active.

In cases of status epilepticus, the knee jerks are often very active during the early stage. At

KNEE JERKS TAKEN AFTER TWENTY-SEVEN CONVULSIONS.*

	Absent.		Not Active.		Active.		Very Active.	
	Right.	Left.	Right.	Left.	Right.	Left.	Right.	Left.
Directly after Tonic Stage	4	5	5	4	8	11	10	7
Ten minutes After Convulsion		1	5	5	18	16	4	5
Thirty minutes After Convulsion		1	4	4	18	15	5	7

NORMAL KNEE JERKS IN SAME PATIENTS.

Three or more hours after Convulsion	1	1	1	2	19	16	1	3

* Five patients had two convulsions.

PLANTAR REFLEX TAKEN AFTER TWENTY-FOUR CONVULSIONS.*

	Absent.		Not Active.		Active.	
	Right.	Left.	Right.	Left.	Right.	Left.
After Tonic Stage	15	16	2	3	7	5
Ten minutes After Convulsion	13	11	1	4	10	9
Thirty minutes After Convulsion	13	11	5	7	6	6

NORMAL PLANTAR REFLEXES IN SAME PATIENTS.

Three or more hours after Convulsion	4	4	8	10	10	8

* Two patients had two convulsions.

this time ankle clonus and the Babinski reflex can often be obtained, especially if the convulsion affects one side of the body more than the other.

As the stage of exhaustion begins, the reflexes are less and less active until they finally disappear entirely, if the exhaustion be severe. They may remain absent or inactive for several days. After this they gradually return and may become very active.

This variation of the reflexes may be explained as follows: During the earlier stages there is an irritable condition of the secondary and possibly of the primary reflex arc. Also there is probably a partial paralysis of the inhibitory apparatus. Under these conditions we get an increase in the patellar reflex.

As convulsion after convulsion follow one another, the cortical motor cells and the motor cells of the cord become so exhausted that they are unable to maintain a sufficient degree of muscular tonus to produce the reflex. The motor cells gradually recover and the knee jerk returns.

As to the prognostic value of the reflexes in status, we are not prepared to make any statement at present. It would seem that in cases where the knee jerk disappears a very much exhausted condition was present and that the prognosis would be more unfavorable.

During the past year, however, we have had one fatal case of status in which the knee jerks were very active until within a short period before death. In another case the knee jerks disappeared early in the attack and exhaustion was profound. This case, however, made a good, although slow, recovery.

The conclusion we have drawn in the study of the patellar reflex after convulsions is that the activity of the knee jerk depends upon the degree of exhaustion or irritation produced by a given convulsion in the cortical motor cells. The greater the exhaustion, the less active the knee jerk.

EXHAUSTION PARALYSIS IN EPILEPSY.

BY MORGAN B. HODSKINS, M.D.

THIS phenomenon is quite frequently observed in epilepsy, and probably occurs to some degree after every hard fit. The absence of tendon reflexes after *very hard* seizures can probably be explained in this way. The writers on neurology either ignore the subject of exhaustion paralysis or dismiss it with a very few remarks.

For a résumé on this subject, I would refer to the "Clinical Studies in Epilepsy," by L. Pierce Clark, from the *Archives of Neurology and Psychopathology*, Volume II, 1899.

In this communication I wish to report four cases which seem to me to come under this head.

CASE I. Admitted June 3, 1903. Patient, A. J. C, male; age, fifteen. Occupation, none. Family history negative. Personal history: Patient has had the ordinary diseases of childhood. When five years of age he had some kind of fever, and during the course of this, he had a great many convulsions which were followed by right hemiplegia. After this the convulsions ceased for seven years, but returned at puberty. The attacks are usually of the petit mal type and occur usually during the day. At times there are absolutely no convulsive movements connected with them. At others there are convulsive movements of the right fingers and arm.

Oct. 24, 1904. For the last few days patient has had a great many convulsions, from twenty to forty in twenty-four hours. The convulsions seem to start in the right hand and extend up the arm. Then patient loses consciousness for an instant and recovers consciousness almost immediately; but the arm and hand may be still in the clonic stage of the convulsion.

Oct. 27. During the past week patient has had three hundred and fifty or more convulsions of the Jacksonian type. These seem to commence in the fingers of the right hand and extend up his forearm. Patient seems to know when they are coming. He grasps his hand and by holding it very tightly seems to abort the convulsion. Motor paralysis in patient's hand complete; sensory paralysis not present; wrist reflexes absent; partial paralysis in forearm.

Oct. 28, 1904. Motor paralysis of hand only par-

tial. A pronator reflex present on radial and anterior side of wrist; sensation normal; knee jerks on both sides active but about equal; no ankle clonus; no Babinski.

Oct. 29. There is noticeable improvement in patient's hand; flexion and extension of wrist returned; some use of fingers also; reflexes plus.

Oct. 31. Patient's hand has improved almost back to its normal usefulness. He is having only a few convulsions at present. Reflexes slightly plus.

CASE II. Patient, W. I. N., male; age, thirty-six. Occupation, stock broker. Family history: Father dead; cause apoplexy. Mother alive and well. Father was of very nervous disposition. Patient has two brothers rather below the average in intelligence and one is much addicted to alcohol.

He did not have fits at any time during childhood, was bright, had the ordinary diseases of childhood, was an energetic young man, but very nervous and troubled with insomnia. Eight years ago, after business failure and a period of strain and over-work, he had his first fit. Since then they have steadily increased in number and severity.

He was admitted to the hospital May 2, 1900, and has had fits at the usual intervals since. On Sept. 22, 1901, at midnight, he had a severe general convulsion. The mode of onset was not observed. After the general spasm had ceased, a clonic spasm was maintained in the left arm and to a less degree in the left leg. This continued with slight intermissions and the patient was unconscious until 3.30 A.M. During this time he did not have another general convulsion and only occasionally did the face muscles of the left side contract. At 3.30 A.M. he was comatose; temperature 105½°; pulse 160; respiration 60. He remained in this condition until 6 A.M. when he became very restless and the nurse noted that he did not move the left side of his body. At this time his temperature was 103⅛°; pulse 130; respiration 20. At 9 A.M. temperature 99⅝°; pulse 108; respiration 18.

He has complete motor paralysis of the left arm and a great deal of motor weakness of the left leg. The muscles of the left side of the face and neck are not affected, the reflexes are all abolished in the arm, and very much diminished in the leg. Babinski not present.

Sept. 26, 1901. The motor weakness of the leg has improved somewhat and the tendon reflexes are plus. The arm remains completely paralyzed and the reflexes are absent.

Sept. 27. Patient is now able to lift his arm but is not able to perform any of the finer movements, such as moving the fingers. The arm reflexes are all plus.

Oct. 15. Patient has improved steadily since last note. He was examined to-day and no trace of the paralysis could be found. Tendon reflexes normal.

CASE III. Patient, G. W. R., male; age, sixty-two. Occupation, mariner.

No heredity. Epilepsy probably caused by a blow on the right side of the head, which he received on Nov. 27, 1898. No fracture of the skull that can be detected at the present time, Jan. 31, 1902. After this injury to his head, he was troubled for a year with severe headaches and after one severer than usual, he had his first fit. This was followed by another in about four months' time, after which the convulsions grew severer and nearer together, until sometimes he would have five or six in one night. While at work during the summer of 1901, patient received a partial sunstroke. After this he developed delusions and was placed in an insane hospital. During his residence there, his convulsions grew milder and less frequent. He was transferred to this hospital Jan. 28, 1902. Examination at this time did not reveal anything especial except paresis of the extensor muscles of the hand, probably from neuritis following la grippe. Since this, he has had a few convulsions of moderate severity, occurring mostly in the night.

On March 2 at 6.05 A.M., he began to have seizures. The onset of the first one was not observed. After the general convulsion was over, clonic spasm of the left leg continued. This was rhythmical, about thirty contractions per minute. About every five minutes, the local spasm would increase in frequency and force, extend to the left arm, right arm, and finally become general, with the head turned slightly to the left side. After about a minute, the general spasm would gradually cease, with the exception of the left leg, which would remain in clonic spasm during the period between the general convulsions.

This was repeated twelve times. After this, patient was examined for exhaustion paralysis and it was found that the left leg was almost helpless, sensation normal as far as could be determined, knee jerks absent, Babinski absent. At 7 o'clock P.M. considerable weakness in the leg. He says his arm feels numb; otherwise normal. Reflexes in the left leg diminished.

March 3. Patient is up and dressed this morning. He says his left leg feels as strong as the right one. No material difference in the knee jerks can be detected. The numbness has disappeared from the arm.

CASE IV. Patient, J. T. S., male; age, sixty-two. Occupation, laborer.

Family and personal history: Father died at forty-two years of age; cause phthisis. He says that his father was a temperate man. Mother alive and well at eighty-two years of age. Patient was an only child. No history of epilepsy, alcoholism, or insanity, or other nervous disease in family.

No history of patient having fits during childhood. He had the ordinary diseases of childhood and then was well until about two years ago when fits began. Patient is a father of ten children, five of whom are dead. Three died with scarlet fever. Cause of death of the other two unknown. He says that none of them died in convulsions. Patient has used alcohol excessively for years. He denies venereal infection. His son says that several times during the last two years patient has had a series of convulsions chiefly confined to the left side, followed by paralysis of this side and afterwards slow recovery; but each attack of paralysis lasting longer than the preceding one.

Patient was admitted to the hospital on March 18, 1902. His son said that on March 12, patient had eight severe convulsions confined chiefly to the left side of the body and following this a period of stupor. Upon regaining consciousness he could not move the left side. He has improved gradually since then. On admission he could not walk without assistance and dragged his left foot. The tendon reflexes are all absent on the left side; the skin reflexes seem about normal; Babinski not present; tactile, pain, and temperature sense present but somewhat retarded. The retardation may be due to the patient's mental condition as he is somewhat demented. The left side of the face is not affected and we understand that this did not take an active part in the convulsions. There is increased resistance to passive movements in the weakened muscles.

March 21. Patient has recovered from the paralysis, and examination shows him to be suffering from locomotor ataxia.

REPORT ON THE HYPOCHLORIZATION METHOD OF TREATMENT OF EPILEPSY.

BY ARTHUR MORTON, M.D.

THE hypochlorization treatment, or as it is sometimes called, "Salt Poor Diet," has been in use at the Massachusetts Hospital for Epileptics

for several years. It consists in substituting sodium bromide for sodium chloride in the patients' food. The claim is made that the bromide salt is rapidly absorbed and becomes a part of the body tissues when administered in this way. It is also stated that when the bromide is given in this way, only about one half the usual quantity is needed to produce the sedative effect.

We have had twenty-four patients, who are either feeble-minded, idiotic, or demented, on this treatment for two and one-half years. The diet of these patients has consisted mostly of milk, eggs, bread and butter, gruel and soups, to which has been added enough sodium bromide so that each patient receives about 15 grs. a day. Sodium chloride has not been entirely excluded from their diet.

The results in this class of cases were very encouraging. The number of spells decreased markedly, and the patients were much quieter than they were before the treatment was commenced.

About the middle of last November, it was decided to put all the patients in the women's hospital, about one hundred, on a salt poor diet. The women's hospital building contains four wards and accommodates patients of all degrees of intelligence. These patients have a plain mixed diet.

The following notes were kept during the course of the treatment:

"Nov. 24, 1903. Patients in women's hospital were put on salt poor diet eight days ago. During this time they had approximately sixty grains of sodium bromide. This was mixed with their food in the kitchen and they also had access to salt cellars containing sodium bromide and corn starch. This amount seemed too much as bromism was produced in five cases. These patients all showed marked effects of the drug, being very sleepy, dull and stupid. No rashes have appeared as yet. Nearly all the other patients were quiet and seemed a trifle dull.

"Dec. 8. Patients have been taking on an average about 35 grs. of sodium bromide a day since last note. Sodium chloride has been almost entirely excluded from their diet, butter being without salt. There has appeared in one case bromism of a mild type. This case had not taken bromide for several years. There is a large diminution in convulsions, but patients have been very noisy and excited ever since last note.

"Dec. 15. For the past week the patients have been taking approximately 30 grs. of sodium bromide. The excitement in all the patients seems to be growing less at the present time. A few of the patients have grown weak, and some of them have been in a mild delirium a part of the time. The patients are not eating so well as they did before the diet began. There seems to be still a large diminution in the number of convulsions. Some patients who were suffering from the want of sodium chloride, have been put on 15 grs. t. i. d.

"Dec. 22. For the past week the patients have been taking approximately 30 grs. of sodium bromide each day. The excitement has diminished somewhat, although the patients are still very irritable. Some of the older patients have been taken off salt poor diet and are now allowed sodium chloride in their salt shakers.

"Dec. 29. The excitement among the patients has somewhat decreased during the past week. They are getting the same amount of sodium bromide. A great many of the patients have complained of constipation.

"Jan. 1, 1904. Sodium chloride has been added in a small quantity to the patients' dietary. This is mixed with equal parts of sodium bromide and placed in the salt cellars.

"Jan. 5. Patients seem to appreciate the addition of sodium chloride to their diet and are getting along nicely. There is an increased number of convulsions. There have also been several series of spells.

"Jan. 12. Salted butter was added to patients' dietary three days ago. Patients seem considerably quieter than they have been for the past two weeks; although there seems to be an increase in the number of convulsions.

"March 1. For the past two months, patients have been taking approximately 25 grs. of sodium bromide each day. The wards have been somewhat quieter than they were the preceding month.

"April 1. The patients have continued taking the same amount of sodium bromide the past month. There has been one severe attack of status epilepticus.

"May 1. The same amount of sodium bromide has been administered during the past month. There have been two severe cases of status epilepticus during the past month. The new patient or patients from the other cottages who enter women's hospital soon develop a mild attack of bromism; but this, as a rule, disappears quickly.

"June 1. During the past month the patients have been allowed double the quantity of sodium chloride in their salt shakers, while the same amount of sodium bromide has been continued. There has been one fatal case of status epilepticus.

"June 15. Beginning with the first of the month, the patients have been allowed all the sodium chloride they wished in their salt shakers. Sodium bromide has been withdrawn entirely from the salt shakers and now each patient gets approximately 25 grs. of sodium bromide which is mixed with their food in the kitchen.

"July 26. Sodium bromide, which the patients have been taking in their food, has been gradually reduced so that now they are getting about 14 grs. a day. The patients seem to show the effect of this reduction by a marked increase in the number of spells. During the past few days there have been several cases of status epilepticus.

"Sept. 3. The reduction of sodium bromide in patients' food has been continued gradually since last note until now it has been entirely removed from their diet. The patients are being carefully watched for the development of status epilepticus and if any signs of this are seen, they are immediately given 60 grs. of bromide by the mouth."

The following table shows the approximate amount of sodium bromide taken daily by a patient, the average number of grand mal, petit mal, and mild convulsions that each patient had during the month, and the average weight of each patient during the month. This table indicates the results in treating ninety-five patients by the hypochlorization method for a period extending from the 15th of November, 1903, to the 1st of September, 1904. The months of September and October, 1903, are included in the table so that a comparison may be made as to the condition of the same patients when on regular diet.

It will be seen by the table that the greatest decrease in the number of convulsions occurred in December when the patients were taking about 35 grs. of sodium bromide each day, and the sodium chloride was almost entirely excluded from

	Amount of NaBr.	Convulsions.				Weight.	Remarks.
		G	P	M	Total		
Sept.	0	7.5	3.7	.2	11.4	117.7	Regular Diet.
Oct.	0	7.2	4.7	.2	12.2	118.8	Regular Diet.
Nov.	45 grs.	5.0	2.8	.1	7.9	118.1	Began Nov. 15.
Dec.	35 "	3.9	1.5	.0	5.4	118.1	NaCl excluded.
Jan.	25 "	3.8	1.9	.9	6.7	117.0	NaCl added.
Feb.	25 "	4.7	2.5	.3	7.5	117.0	
Mar.	25 "	6.2	1.8	.4	8.4	117.0	
Apr.	25 "	6.4	2.0		8.4	117.8	
May	25 "	6.9	1.1		8.1	118.8	NaCl increased.
June	25 "	6.8	1.0		7.9	117.4	NaCl ad lib.
July	18 "	6.0	1.2	.1	7.3	118.8	
Aug.	8 "	7.5	1.3		8.8	118.2	

G = Grand mal convulsion.
P = Petit mal convulsion.
M = Mild convulsion.

their diet. During this time, however, the patients were very irritable, and those of inferior mentality were noisy and quarrelsome.

There was not enough of the bromide salt to satisfy their craving and it was no unusual thing to see a patient empty the entire contents of the salt cellars on her plate.

We continued this diet through the month of December; but at this time the patients found so much fault, that it was decided to add sodium chloride to the bromide contained in the salt shakers. After the sodium chloride was added, there was a gradual increase in the number of convulsions; but the number was still below the average when the patients were on the regular diet.

CONCLUSIONS.

The hypochlorization method controls the convulsions, requiring only about one half the amount of bromide usually given.

It has little or no effect on the general nutrition of the patient.

It is apt to cause constipation.

It does not furnish enough salt to satisfy the patients' craving.

It may be used with success with intelligent patients.

It is practically useless in the middle grade of epileptics, as they have neither the desire nor the will power to carry it out properly.

A modified salt poor diet, in which about equal parts of sodium chloride and sodium bromide are used in the food may be used to advantage with idiotic and demented patients if their diet can be controlled absolutely.

Bromism is comparatively rare.

LUMBAR PUNCTURE IN STATUS EPILEPTICUS.

BY MORGAN HODSKINS, M.D., AND ARTHUR MORTON, M.D.

IT seems to be a much disputed question whether or not there is an increase in intracranial pressure during attacks of status epilepticus. During the past year, we have performed lumbar puncture in seven cases. In five of these, the cerebro-spinal fluid was under increased pressure.

We think that in most cases, there is an increase in intracranial pressure, and that by withdrawing from 15 to 20 cc. of cerebro-spinal fluid, we may be able to lower this pressure in a marked degree. In one of our cases, the blood pressure fell thirteen points after the puncture.

We do not wish it to be understood that we think the attack is necessarily caused by increased intracranial pressure; but we do think that after an attack has started, there is increased pressure present and that this increase probably has much to do with the continuance of the attack.

Much the same symptoms are found in status epilepticus as exist in uremic eclampsia. In the *Journal of the American Medical Association* for Oct. 8, 1904, Dr. Robert N. Wilson reports a series of cases of uremic eclampsia in which he performed lumbar puncture. He lays considerable stress on the increase of intracranial pressure in the production of uremic convulsions. In our seven cases, four showed marked improvement after the puncture and recovered while the other three died, although two of these showed temporary improvement.

We think that this procedure will give better results the earlier in the attack it is used. In most of our cases, it was used as a last resort.

CASE 399. March 26, 1904. Patient developed status and the convulsions could not be controlled by the ordinary means. After she had had forty hard convulsions at intervals of about fifteen minutes, lumbar puncture was performed and 12 cc. of cerebro-spinal fluid was removed. The fluid was not under very high pressure.

After the withdrawal of the fluid, patient ceased having convulsions for over two hours. After this she began again and had about 35 more during the next two days. These last were not as severe and the intervals between them were longer.

This case made a slow recovery.

Microscopical examination of the fluid, with a one-sixth objective, showed about one or two red cells and one endothelial cell in each field.

CASE 578. April 18, 1904. Patient developed status and 100 grs. of sodium bromide were administered hypodermically. As the convulsions did not cease, lumbar puncture was performed after patient had twenty-four hard seizures. Fourteen cubic centimeters of cerebro-spinal fluid were removed. The fluid was under increased pressure. After the withdrawal of the fluid, patient had only one more convulsion in the next twelve hours. After this she had a few more light convulsions which were easily controlled. This case was followed by an exhaustion paralysis of the pharynx and extremities. Recovery was slow. Microscopical examination, with a one-sixth objective, showed one red cell in each field.

CASE 568. April 18, 1904. Patient developed status and had twenty-five convulsions of the grand mal type although not very severe. As the usual remedies failed to control the spells, lumbar puncture was performed and 14 cc. of the cerebro-spinal fluid were withdrawn. The fluid was under slightly increased pressure.

After this, patient had five light convulsions within the next two and one-half hours after which they ceased entirely.

Patient made quick recovery.

Microscopical examination of the cerebro-spinal fluid showed with a one-sixth objective about one red cell to every two fields.

Case 417. May 19, 1904. Patient developed status and had about twenty-five hard convulsions. The usual remedies were used, but had little effect. Lumbar puncture was performed and 14 cc. of cerebrospinal fluid were removed. The fluid did not seem to be under greatly increased pressure until the patient had a convulsion, when it squirted from the needle in a stream.

May 20, 1904. Lumbar puncture produced little, if any, results in this case as patient had about seventy-five more hard convulsions and is now having many light spells.

May 21, 1904. The light convulsions continued today and patient died at 5.15 P.M. Microscopic examination of the fluid showed about two red cells to each field, one-sixth objective. There were also a few leucocytes and endothelial cells present.

Case 246. Aug. 29, 1904. — For the last three days, patient has been having on an average of from seventy-five to one hundred fits a day. All the ordinary remedies have been tried without result. At two o'clock P.M. lumbar puncture was performed and 15 cc. of clear cerebrospinal fluid were withdrawn. The fluid appeared to be under considerable pressure, dropping about one hundred and twenty times a minute. The fluid was examined with a one-sixth objective. The only abnormal constituents noted were a few red cells.

After the puncture, patient seemed somewhat improved and did not have a convulsion for three and one-half hours. After this, the fits began again, the temperature ran up to 109° F. and death followed.

Case 321. Sept. 12, 1904. Patient has been suffering from status for the past thirty-six hours. The ordinary remedies having no effect, at 4.30 o'clock this afternoon lumbar puncture was performed and 15 cc. of clear cerebrospinal fluid were withdrawn. The fluid was under increased pressure. Patient did not have another convulsion for eight hours. Then the fits began again. The temperature went up to 107° F. and death ensued from exhaustion. The cerebrospinal fluid was not examined microscopically.

Case 578. Oct. 12, 1904. Patient had twenty-five hard convulsions which could not be controlled. Lumbar puncture was performed and 20 cc. of the cerebrospinal fluid were removed. The fluid was under increased pressure. After this 10 cc. of a sterile sodium bromide solution, 30 grs. to the ounce, were injected directly into the subdural space. Patient had only one convulsion in the next fifteen hours.

Examination of the cerebrospinal fluid was negative.

The blood pressure which was 140 before the puncture fell to 127.

Patient made slow recovery.

In examining the cerebrospinal fluid the following technique was used: The fluid was caught as it dropped from the needle in two sterile centrifuge tubes. About 7 cc. were allowed to drop into each tube. These tubes were immediately centrifuged for twenty minutes at twelve hundred revolutions a minute. After this all but a few drops of the fluid was removed with a pipette. A drop of the remainder was placed on a slide, covered with a cover glass, and examined with a one-sixth objective. In estimating the red cells, the contents of the second tube were used so as to avoid any introduction into the fluid of blood from the wound.

Bequests. — By the will of the late Mrs. Emily Warren Appleton of Boston, among many other public bequests, the Massachusetts Charitable Eye and Ear Infirmary receives $2,000 and the Boston Instructive District Nursing Association $5,000.

Clinical Department.

A CASE OF URETERAL CALCULUS; REMOVAL BY ILIAC INCISION.*

BY F. B. LUND, M.D.,
AND
HOWARD H. SMITH, M. D., BOSTON.

History by Dr. H. H. Smith: C. A. T., aged twelve, born in Boston, schoolboy. Since latter part of 1903, boy has been more or less delicate and has tired easily.

April 16, 1904. About three months ago, after skating for some hours, patient came home complaining of sharp, lancinating pains in lower right abdomen. Pain was severe, compelling him to remain in sitting posture. At this time mother says she noticed a tumor in right lower abdomen, which was red and tender. Duration of tumor unknown. Since first attack of pain he has had four others, at about intervals of two weeks. Attacks last from one to three days, pain being constant with frequent sharp exacerbations of a colicky nature. Each attack has been associated with vomiting, vomitus greenish in color, never bloody. Bowels regular. Micturition more frequent recently, gets up once or twice at night. Appetite poor.

Last attack was April 15, 1904, pain severe, kept child up all night, considerable vomiting, pain referred to end of penis, and to scrotum. Never has noticed color of urine during attack.

Examination showed a well developed and nourished boy.

April 16, 1904. Skin and visible mucous membrane pale. Occasional choreic movements, especially noticed in extended fingers.

Abdomen retracted, tympanitic, no mass felt. On right side there is tenderness on deep pressure. Tenderness seems to follow line of psoas muscle. There is no muscular spasm. There are a few small palpable glands along right psoas muscle.

Liver, spleen and kidneys are not palpable.

Reflexes normal. There are a few palpable glands in each axilla, and in both sides of the neck, and in the groins. Glands are discrete, movable and not tender. There is no edema. Rectal examination not made.

Urine. — Acid; slight trace of albumin; no sugar.

Leucocytes. — White count, 4,200.

No attacks of pain since last visit. Child comfortable; no subjective symptoms.

Total quantity in twenty-four hours, 1,060 cc. Day amount, 620 cc.; night amount, 440 cc.

Day amount: Normal color, acid, specific gravity, 1,022. No albumin. No sugar. Sediment: Much calcium oxalate, few uric acid crystals. Small amount of pus, rarely in clumps. Few pelvic cells- Amorphosis urates. *No blood.*

Night amount: Normal color. Specific gravity, 1,020. Acid. No albumin or sugar. Sediment as above. Urea not calculated — through oversight.

April 22. Child improving. No symptoms. Urine shows no albumin or sugar.

X-ray examination. — X-ray examination shows well-marked shadow about size of date stone in lower right quadrant, just above pelvic brim. The radiographs are shown in Figs. 1 and 2.

On examination there is still some tenderness along right psoas muscle, on deep pressure. No spasm. No mass. Operation advised for removal of the ureteral calculus.

May 26, 1904. Since last note one month ago, patient has had two attacks of pain, the last, a day or so ago, was the most severe he has had at any time during

*Patient shown at the meeting of the Boston Medical Library on March 1, 1905.

course of the illness. Urine shows no albumin. No blood. Tenderness persists on right. Parents give consent for operation.

May 28, 1904. Operation May 28, 1904, by Dr. F. B. Lund, at the Boothby Hospital assisted by Dr. Germain.

Under ether an oblique incision was made, about one inch above and parallel to Poupart's ligament, its upper end opposite the anterior superior spine of the ilium. On making the incision through the skin and aponeurosis of the external oblique and the internal oblique muscle, peritoneum was exposed. It was not opened, but worked carefully back with the hand, inward and downward, down to the bottom of the pelvis, where the stone could be felt. The ureter above the stone could not be identified. By freeing the tissues surrounding the ureter and stone, an attempt was made to push the stone upward so as to identify the ureter at a higher point, but as the stone could not be pushed upward, it was necessary to make the incision upon the stone in its original position in the bottom of the pelvis. This was done with some difficulty, and as soon as the stone was exposed, silk sutures were passed with a curved needle, and after removal the incision was closed in the ureter by tying the sutures. The stone was then found to have been rough on its outer surface and lying in a pocket in the ureter, which sufficiently explained why it could not be moved upward from its position. Great assistance in removal of the stone was obtained by having an assistant lift it up by a finger in the rectum. A probe passed upward into the pelvis of the kidney and downward into the bladder, failed to reveal the presence of any more stones. The sutures were then tied, closing the wound, except for an opening in the lower angle through which a cigarette drain was passed down to the line of sutures in the ureter. The patient had no shock, but had slight elevation of temperature for the first two days. He made an excellent recovery. There was a leakage of urine about the drain up to the second day, when it was removed, and through the sinus left by its removal, for two or three days more. After that the drain opening closed, and the boy left the hospital with the wound firmly healed, having gained markedly in weight and general condition, about two and a half weeks after the operation.

July 12, 1904. Child has made a perfect recovery from operation. He still has frequent micturition, has to get up once or twice nearly every night to pass water.

There is no tenderness along course of ureter. His general condition is much improved, color is better and there is no evidence of chorea.

Urine has been examined at different times, each time there has been the slightest possible trace of albumin present. Specific gravity from 1,008 to 1,014. Sediment has always contained abundant calcic oxalate crystals, small amount of pus and uric acid.

At last examination a few days ago there were also a few fine granular casts and small round cells. Quantity ranges from 900 cc. to 1,200 cc.

X-ray taken to-day shows no evidence of calculi.

March 1, 1905. The patient is in good condition with no urinary symptoms.

The excellent x-ray plates were taken at the Boston City Hospital by Dr. F. H. Williams.

GIFT TO COLUMBIA MEDICAL SCHOOL. — At a meeting of the trustees of Columbia University held June 5, among other gifts was announced one of $20,000 from H. W. Carpentier, to be added to the principal of the R. S. Carpentier Fund of the medical department of the University.

Reports of Societies.

ABSTRACT REPORT TWENTIETH ANNUAL MEETING ASSOCIATION OF AMERICAN PHYSICIANS.

HELD IN WASHINGTON, D. C., MAY 16 AND 17, 1905.

PRESIDENT'S ADDRESS.

E. L. TRUDEAU, Saranac Lake, expressed his great appreciation of the honor that had been conferred upon him and said that the Association had more than fulfilled its destiny along the lines laid down from the beginning, its object having been the consideration of scientific subjects and original research and observation. All the subjects pertaining to the advancement of medical science had been discussed at its meetings, and their practical value passed upon for the benefit of the clinician. He referred to the increase in the active membership as a step in the right direction. Speaking of the loss of Dr. William Osler, who will take the chair of medicine as Regius Professor at Oxford, Dr. Trudeau dilated upon the great benefit the association had derived from his membership in it. He also referred to the calling abroad of Dr. Cushny.

ON THE FEAR OF CATS AND ON THE POWER OF CERTAIN PERSONS TO DETECT THEIR PRESENCE WHEN THE ANIMAL IS UNSEEN AND UNHEARD.

S. WEIR MITCHELL, Philadelphia: The writer presented an accumulation of evidence received through letters from all parts of the world on the susceptibility of certain persons, both male and female, to the feline presence. A whole train of symptoms was produced in some individuals by the presence of cats, the symptoms ranging from nausea to blindness. Many referred their sensations to fright in childhood; about one fourth of them spoke of it as a family peculiarity. In some cases the odor of the animal announces its presence. In others the olfactory organs are the parts through which the fear is suggested, but without recognition of any sense of odor as the cause. Some were subjected to emotional disturbances by the presence of a cat without any affection of the olfactory sense.

INTRAPLEURAL LIPOMA; PERICARDIAL EXPLORATION.

R. H. FITZ, Boston: The author said that intrapleural lipomata may grow from the subperitoneal, subpleural and mediastinal fat tissue and project into the pleural cavity from the diaphragm, costal wall or from the mediastinum. That diaphragmatic lipoma is a rare anatomical curiosity, only two cases having been reported, and is of no clinical significance. The costal subpleural lipoma may penetrate the wall of the chest and appear as an external tumor connected by a stalk with the internal growth. Three such tumors have been operated upon with two deaths. The mediastinal type also may penetrate the thoracic wall and grow from the surface of the chest, three cases having been reported and were operated upon with a fatal result in all. The writer added a case of pedunculated intrapleural lipoma of mediastinal origin to the series and suggested its significance in the differential diagnosis of pericardial and pleural exudations. He considered its presence explanatory of a failure to obtain pus in purulent pericarditis. The case reported occurred in a patient who had an attack of lobar pneumonia. There was delayed resolution and signs suggestive of pericarditis. It was thought that there was effusion, and punctures were made in the fourth and fifth interspaces, but no fluid appeared. On aspiration no pus was obtained. There was some fatty tissue adherent to the needle suggesting the possibility of a

new growth. A puncture was then made in the right xiphocostal angle and pus withdrawn. At autopsy there was grey hepitization of the left upper lobe, purulent pericarditis and this lipoma arising from the mediastinum. This explained the absence of the usual signs of pericarditis. The possibility of diagnosing these tumors by the presence of fat on the needle was suggested. The writer had punctured in the xiphocostal angle in two cases without untoward results and

nosis. A number of cases were quoted in support of this view, a large number representing other conditions having failed to show rhythmic lateral displacement. It was absent in subdiaphragmatic abscess, malignant disease of the lung and pleura and in pneumothorax. The sign is best observed by the fluoroscope or by auscultatory percussion. The degree of effusion markedly influences the movement, trifling effusion failing to show it, massive effusion being accompanied by a min-

LUND — A CASE OF URETERAL CALCULUS.

Fig. 1. — Reduced two thirds. Before operation, showing stone.

Fig. 2. — Reduced two-thirds. After operation and removal of stone.

I. M. Rotch, Boston, thought we could tap with perfect success in children, and that the fifth interspace was the place of election for tapping.

R. H. Fitz, Boston, in closing said if the xiphocostal puncture were used and no fluid obtained, puncture could be followed by incision, and in this way exudate reached which otherwise could not be gotten at because of its position behind the heart.

RHYTHMIC LATERAL DISPLACEMENT OF THE HEART AS A SIGN OF UNILATERAL PLEURITIC EXUDATE.

Charles Lyman Greene, St. Paul: The essayist had, in 1902, called attention to this theretofore unobserved sign of unilateral pleuritic exudate, consisting of a rhythmic lateral displacement of the heart, synchronous with respiration. Observation during the past three years had confirmed the original observations and shown that the sign was of value in differential diag-

of interest were that a mild continued fever may be a gonorrheal septicemia in the absence of other complications, and that gonorrheal septicemia may run a course closely simulating typhoid fever.

DISCUSSION.

William Osler, Baltimore, said that in addition to cases of mild gonorrheal septicemia, such as Dr. Thayer had spoken of, and which are difficult to differentiate from typhoid fever, there was also an acute fulminant septicemia which might sometimes be mistaken for typhoid fever. He had had one such case, the patient dying within a week.

FEVER IN CHRONIC ENDOCARDITIS.

J. S. Thacher, New York: The paper consisted in an analysis of one thousand cases of chronic endocarditis, with reference to the presence of fever and the causes

course of the illness. Urine shows no albumin. No blood. Tenderness persists on right. Parents give consent for operation.

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DISCUSSION.

JAMES EWING, New York, demonstrated the pathological findings in the tumor, which consisted of five lobules united by connective tissue. It was joined to the mediastinal tissue over the pericardium and partly surrounded the aorta. It extended up in the neck around the trachea. There was moderate compression of the lung and the heart muscle was flabby.

WILLIAM OSLER, Baltimore, agreed with the writer that when pericardial invasion occurred puncture in the right xiphocostal angle was the proper procedure. He had so done on several occasions; one, a case of tuberculous pericarditis, which had already been tapped in several places. He had noticed the results of puncture at this point on bodies coming to post-mortem, as to the danger of wounding the liver, diaphragm, etc., and found that these organs were not involved. The liver is depressed and out of the way when there is much exudate. He thought that often patients were allowed to die from large pericardial exudates who might be saved. In looking over some records recently he had noticed four or five instances in which this procedure should have been employed. He advocated the more frequent use of the small hypodermic needle for exploration in doubtful cases.

FRANK H. WILLIAMS, Boston, questioned if there was any rule that was applicable to all cases, and thought that a pleuroscopic examination should be carefully made.

F. FORSCHHEIMER, Cincinnati, did not feel so enthusiastic about the use of the needle for exploration, especially in children.

G. L. PEABODY, New York, said that pneumonia differed in type in different years and referred to a patient with a mass of fibrinous exudate so thick it could not be detected by a needle and could not have been removed at operation. He believed a safer rule for tapping was to wait until there should be impairment of cardiac function and that it was not wise to tap for diagnosis or as a routine practice in pneumonia.

T. M. ROTCH, Boston, thought we could tap with perfect success in children, and that the fifth interspace was the place of election for tapping.

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RHYTHMIC LATERAL DISPLACEMENT OF THE HEART AS A SIGN OF UNILATERAL PLEURITIC EXUDATE.

CHARLES LYMAN GREENE, St. Paul: The essayist had, in 1902, called attention to this theretofore unobserved sign of unilateral pleuritic exudate, consisting of a rhythmic lateral displacement of the heart, synchronous with respiration. Observation during the past three years had confirmed the original observations and shown that the sign was of value in differential diagnosis. A number of cases were quoted in support of this view, a large number representing other conditions having failed to show rhythmic lateral displacement. It was absent in subdiaphragmatic abscess, malignant disease of the lung and pleura and in pneumothorax. The sign is best observed by the fluoroscope or by auscultatory percussion. The degree of effusion markedly influences the movement, trifling effusion failing to show it, massive effusion being accompanied by a minimum of rhythmic displacement. The sign sometimes obtained by inspection, but such observation subject to error. More easily recognized in right than in left-sided effusion. Deep respiration is necessary and may require the exhibition of morphine for the relief of the attendant pain. The author doubts the statement, generally accepted, that in certain cases of effusions the diaphragm is rendered immovable or bulges into the abdominal cavity, no such condition having been observed. He also takes issue with the statement that the extent of cardiac displacement in liquid effusion cannot be accurately determined without the use of the fluoroscope, auscultatory percussion in cases of displacement to the left and simple percussion having yielded outlines corresponding accurately to fluoroscope findings. The writer concludes: (*a*) a rhythmic lateral movement of the heart occurs in unilateral liquid pleural effusions. (*b*) Such movement is most marked in medium-sized effusions. (*c*) The heart approaches the affected side in inspiration and moves outward in expiration. (*d*) The extent of movement is variable, but often amounts to two inches. (*e*) That it may be measured by fluoroscopic examination, auscultatory percussion, or, in the case of right-sided effusions, by simple deep percussion of the free cardiac border, or, in some instances, by mere inspection of the apex beat. (*f*) Deep breathing and especially forced expiration are essential to the success of the maneuvre, and, to obtain this, morphine must sometimes be administered. (*g*) Marked rhythmic lateral movement has not been found in pneumonia, tuberculous infiltrations of the lung, malignant disease of the pleura or lung, or in sub-diaphragmatic abscess.

GONORRHEAL SEPTICEMIA AND ENDOCARDITIS.

W. S. THAYER, Baltimore: The writer considered in detail several cases of gonorrheal septicemia and ulcerative endocarditis that had occurred at the Johns Hopkins Hospital, and one instance of general gonorrheal septicemia associated with arthritis without other apparent complications. There was continued fever, simulating in some respects typhoid fever, of over two months' duration with complete recovery. Gonococci were obtained in pure culture from the circulating blood. He said that acute urethritis was not so infrequently followed by endocarditis. The main points of interest were that a mild continued fever may be a gonorrheal septicemia in the absence of other complications, and that gonorrheal septicemia may run a course closely simulating typhoid fever.

DISCUSSION.

WILLIAM OSLER, Baltimore, said that in addition to cases of mild gonorrheal septicemia, such as Dr. Thayer had spoken of, and which are difficult to differentiate from typhoid fever, there was also an acute fulminant septicemia which might sometimes be mistaken for typhoid fever. He had had one such case, the patient dying within a week.

FEVER IN CHRONIC ENDOCARDITIS.

J. S. THACHER, New York: The paper consisted in an analysis of one thousand cases of chronic endocarditis, with reference to the presence of fever and the causes

and significance thereof, with especial attention to those cases in which the explanation of the pyrexia is not easy, and to the subsequent course of each case. The hospital list of histories consisted of 1,093, of which 901 cases had been carefully studied. They were divided into three groups according to the height of temperature, those showing a maximum of 100, 101.5 and 103. The first group consisted of 306 cases. Of the remaining 585 cases complications, as articular troubles, petechial or hemorrhagic eruptions, ruled out 294, leaving 291 with temperature above 100 with no explanation of the pyrexia. Autopsy on the petechial cases showed that they were not associated with ulcerative endocarditis. Of the cases with hemorrhagic eruptions, however, 18 proved fatal. As to cases with frank signs of complication, which might of themselves cause elevation of temperature, the most frequent complications were, pleurisy, pulmonary tuberculosis, typhoid fever, malarial fever and a number in which minor operations could have accounted for the fever. Comparison between the febrile and afebrile cases showed that in the two groups the percentage of cases with previous history of arthritis did not materially differ. The kidney condition was also about the same in the two classes. As to mortality the rheumatic cases with fever had a lower death-rate than the afebrile. As to the form of lesion compared with the clinical picture, it was generally supposed that those with vegetations were more apt to be febrile cases and more fatal. There were exceptions to this rule. A number of autopsies upon cases that showed no fever revealed large vegetations and ulcerations. There were four called malignant endocarditis that showed only slight vegetations on the valves.

DISCUSSION.

A. O. J. KELLY, Philadelphia, was of the opinion that the explanation of the cases with no apparent cause for the pyrexia was that the endocarditis was a septicemia without necessarily heart lesions; that whether there were lesions or not the conditions might be the same. The severity of the heart lesions was no criterion of the condition at all.

A. JACOBI, New York, said that when the vegetations were on the insertions of the valves there was generally no fever. He thought that in many cases the diagnosis of endocarditis was made because of the systolic murmur merely when they were in reality cases of myocarditis. These get better for a while but the murmur does not disappear and is brought out on slight exertion. They were best diagnosticated by the fact that there was no enlargement or hypertrophy.

JAMES TYSON, Philadelphia, had at present under observation a girl of twenty-five with endocarditis and a subnormal temperature. In this case there was a sudden appearance of an eruption, confined to the legs, and especially invited by the upright position.

VICTOR VAUGHN, Ann Arbor, said that all bacterial poisons lower the temperature; that was one of the clinical signs for distinguishing between diphtheria and tonsillitis; if the temperature was 104–105 the disease was apt to be tonsillitis rather than diphtheria; if 100–101 then chances were in favor of diphtheria. The lower the temperature in diphtheria the greater the danger. Cases of sub-normal temperature always die. The low temperature depends upon the rapidity with which the bacterial poison is liberated. He thought, therefore, that it was not surprising that in the cases where temperature did not go above 100 the death-rate was high.

WILLIAM OSLER, Baltimore, thought that the recurring fever in chronic endocarditis was often due to the little vegetations so common on the old sclerotic valves. He spoke of the case of a man under his observation for fourteen or fifteen years who had a number of severe attacks of fever in connection with his mitral endocarditis which on one occasion reached 105°. He called attention to a form of chronic fever associated with chronic vegetative endocarditis — fever alone, with nothing else; gradually the signs of endocarditis occurring and going on to fatal termination. He exhibited a year's temperature record in which the patient showed a temperature every day, with only this fever and the mitral murmur, the patient dying of chronic vegetative endocarditis. Had had a series of such cases, in which the fever dominated the whole picture. These might at first be taken for malarial cases.

F. P. KINNICUTT, New York, had had in the past year two or three cases giving the same symptoms as those described by Dr. Osler, fever and nothing else except the slight mitral murmur; one case lasting five and another seven months; then the fever ceased and though the murmur persists the patients are in excellent health.

(To be continued.)

Recent Literature.

The Practical Medicine Series of Year Books. Volume X, September. *Skin and Venereal Diseases.* By WILLIAM L. BAUM, M.D. *Nervous and Mental Diseases.* By HUGH T. PATRICK, M.D. With the collaboration of CHARLES L. MIX, A.M., M.D. 12mo, pp. 234. With 27 illustrations. Chicago: The Year Book Publishers. 1904.

The successive volumes of this series of year books, giving a review of the literature in the several departments of medicine, have established their value for the general practitioner, for whom an annual review is usually sufficient. The present volume is of decided merit, and in the section on nervous and mental diseases, in particular, Dr. Patrick, as was to be expected, has not only selected his articles with sound judgment, but has added many excellent brief comments as the editor.

Recurrent Effusion into the Knee-Joint after Injury with Especial Reference to Internal Derangement Commonly Called Slipped Cartilage. An analysis of 750 cases. A clinical lecture delivered at St. George's Hospital. By Sir WILLIAM BENNETT, K.C.V.O., F.R.C.S., Senior Surgeon to St. George's Hospital, Surgeon to King Edward VII Hospital, etc. With 11 illustrations. Reprinted, after revision, from the *Lancet*. All rights reserved. 39 Paternoster Row, London, New York and Bombay: Longmans, Green & Company. 1905.

This is a reprint, with additional illustrations, from a lecture that appeared in the *Lancet* of January 7, 1905. The lecture attracted our attention when it was first published and we are glad that it has been placed in this more permanent form. An analysis of 750 cases is of a great deal of interest, and the lecture will be turned to by anyone who is interested in the subject of effusion in the knee-joint.

THE BOSTON

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27 and 29 Bromfield Street, Boston, Mass.

A POSSIBLE SOLUTION OF THE PATENT MEDICINE QUESTION.

Throughout the country, especially where the sale of intoxicating beverages is prohibited, the patent medicine evil has increased so extensively within recent years as to cause grave apprehension, and as a result many of the State legislatures have repeatedly been petitioned by individuals and associations to enact laws requiring each bottle or package to bear a label on which the formula shall be set forth. In but one state has even a small measure of success been attained; in the others, the movement has almost invariably ended in the committee-room in igaominious failure; and where a bill has been reported, it has promptly been killed. During the recent session of the Massachusetts legislature, no fewer than six bills were offered, and but one, a bill requiring a statement of the amount of alcohol present, emerged from the committee-room and passed the House, only to be killed in the Senate without a vote in its favor. To most persons, unaware of the great influence exerted by the manufacturers, this result must appear inexplicable; but one of the reasons is very simple. The amount annually expended in advertising these nostrums in the newspapers is said to be several millions of dollars, and the advertising contracts of most of the companies interested contain a clause to the effect that, in the event of any restrictive national or state legislation, the contract shall terminate. Thus, through financial interest, every newspaper employed as an advertising medium becomes an opponent of the movement for the public good. The outlook for improvement and advance is dark, but the action of one of our largest manufacturing companies sends forth a ray of light which leads to the hope that reform within the ranks of those against whom the fight is waged may lead to a solution of the whole question. After the defeat of all of the bills presented, this company took the commendable position that it would do voluntarily what the legislature had vainly been urged to compel: it published its formulas and, depending upon the value of its established reputation with the public, announced that anybody was welcome to use them and to compete with it in the public market. It has asserted, and with a certain measure of right, that its preparations, being no longer secret, may properly be prescribed by the profession, provided the formulas are such as to meet the indications for treatment of particular cases. Disregarding the objectionable fact that the public is encouraged to practice self-treatment without adequate knowledge of its appropriateness and whether any medicine whatever is needed, it must be conceded that there can be nothing unethical in the prescription by a physician of a proprietary preparation of, for example, potassium iodide, compounded so as to be palatable and as efficient for his purpose as any mixture of the same for which he himself can write. Indeed, many proprietary preparations of recognized drugs, not, however, advertised in the lay press, are prescribed by the most ethical of practitioners (the constituent parts being no secret), because of the excellence of manufacture.

The action of the company under consideration is certainly commendable. May recognition of this fact not lead to good results? May other manufacturers of preparations based on legitimate prescriptions not be led to follow the example, and, breaking away from the combination that opposes legislation, combine with the forces which ask it, and thus eventually force to the wall the makers and venders of wholly quack preparations, such as cures for the morphine habit and substitutes for cocktails and other alcoholic beverages? The question is a serious one and worthy of sober consideration.

THE UTILITY OF THE HISTORY OF MEDICINE.

The history of medicine in the past, and for a long period, enjoyed every favor to which it is so justly entitled. In point of fact all the greatest physicians of past times occupied themselves considerably with the history of their profession and published the results of their researches,

giving to the medical world extremely interesting works, which unfortunately are little read by physicians and students ofthe present time. The Faculty of Medicine of Montpellier had a chair of the history of medicine, which unfortunately has been abolished. The Faculty of Medicine of Paris founded its professorship of medical history at the time that the schools were founded in the year III. This chair was preserved under the new organization in the year XI and was for a long time held by men of great reputation. At the present time this chair is filled by the eminent professor Dejerine, who succeeded Laboulbène and Brissaud. Various incidents show that in Germany more and more interest has been taken in the history of medicine during the last decade, and the German Government has adopted the project of a law proposing a reorganization of the examinations which future physicians will be obliged to undergo. This project states that hereafter the preliminary examination (Staatsexamen) will attach more importance to specialties, such as legal medicine and the history of medicine. In adopting this rule the German government has been obliged to create a professorship for the history of medicine and medical geography in all the universities throughout the Empire.

In reality the study of these two branches offers numerous advantages to physicians, and the least of these should be sufficient to restore a study which has been so unjustly neglected of recent years. In the inaugural discourse to the course of medical history at the Military Medical Academy of St. Petersburg, Professor Skoritschenko-Ambodik has remarked: "The historical method is a supplement absolutely necessary to that of observation and experimentation. By following a certain phenomenon from century to century, by witnessing its various changes under the domination of various conditions, we form a comparative manner of observing, supplementary to the knowledge founded on the study by experiments and observation. Besides this, it is history which keeps us in touch with the consecutive development of medicine, explains to us the modern position, renders us reasoning participants in the advancement of science, enlarges the sphere of our ideas, develops a critical analysis relative to modern doctrines and contributes to retain the dogmas of medicine. By exposing predominating theories it allows one to examine the matter on every side. All the celebrated representatives of medicine pass before our eyes, and history, studying their ways of thinking and of observation, gives us the key to the understanding of the causes of the success and non-success of medicine. History in no way conceals the sad scenes of persecution of the truth, and it teaches us an instructive lesson for the future. And lastly, history of medicine permits a more exact understanding of certain occurrences of civil history."

Reference should also be made to a criticism which appeared in the *New York Medical Journal* some little time ago relating to the well-known work of Dr. Roswell Park, entitled "An Epitome of the History of Medicine." In speaking of this work that *Journal* points out that the study of medical history is too greatly neglected by physicians and, with the author, it regrets this condition of affairs and goes on to say that with their fever for progress, professional men of America have less time than physicians of the old world to go over the road once trodden. One should not be astonished that in America the history of medicine has been so neglected, for the simple reason that it does not give rise to the discovery of new remedies.

It cannot be denied that there is something practical in the history of medicine, and it is not merely by chance that the great masters of the art, such as Hippocrates and Galen down to Virchow, Charcot and Osler, urge the study of medical history. Its advantages have without doubt struck the critical minds of several eminent physicians, because in all countries a favorable movement for the study of this branch, so useful to the progress of medicine, is to be noted at the present time. The well-known publication *Janus* took the initiative in founding an international association for the study of medical history and geography. On the other hand *La France Médicale*, thanks to the work of Professor Blanchard and Dr. Albert Prieur, has been successful in forming an organization entitled "Société Française d'Histoire de la Médecine," and numerous distinguished physicians were eager in their response to the call for coöperation. In a circular sent to various physicians announcing its foundation, the first paragraph reads as follows: "Considering that the study of medical history is indispensable for the wise understanding and progress of medicine and those sciences which it includes, we have thought we might contribute to their development by creating, with the aid of all those who share our opinion, a society of medical history."

With such an initiative, it is to be hoped that a general current will oppose certain existing tendencies. Certainly, a little poetry, a little

philosophy, and a little idealism can in no way harm the medical science, and may even embellish and inspire it.

MASSACHUSETTS MEDICAL SOCIETY.

The Massachusetts Medical Society concluded its one hundred and twenty-fourth meeting this week with the customary annual dinner attended by upwards of eleven hundred fellows and guests. The meeting this year was noteworthy in several respects. It has become increasingly apparent that set papers do not meet with the appreciation which is no doubt their due. This is in a measure to be attributed to the usual heat of the season and the fact that large bodies of men usually prefer to see rather than to hear. This year, therefore, at the suggestion of Dr. W. T. Councilman, a demonstration of clinical and laboratory methods used in medicine was substituted for a part of the literary program. About twenty different departments of medical diagnosis were represented in this demonstration, including the various special subjects. The appreciation of the plan on the part of the visiting members of the society was complete. The aim of those having the demonstration in charge was to show as far as possible recent progress in scientific method as applied to clinical work. The various sections were all largely attended and no doubt many suggestions, or at least an added stimulus for accurate work was carried away by those practitioners who have not the benefits of access to laboratories and large hospitals.

As an introduction to this series of demonstrations, Dr. Lewellys F. Barker of the Johns Hopkins University addressed the society on the general subject of "Methods in Medicine." As was to be expected, Dr. Barker discussed the matter from the broad point of view which it is eminently desirable to impress on every occasion. He insisted on the necessity of recognizing the close relationship between the laboratory and practice and pointed out what is too often overlooked that the problems of the laboratory and the clinic are essentially the same, and that each must be regarded as a stimulus to the work of the other. We have no doubt that the time has come when the old and wholly unjustified antagonism between so-called scientific and practical medicine will be laid aside and the true relationships of these branches of medical research be recognized. Dr. Barker's address should help in this good work.

The Shattuck Lecture was this year given by Russell H. Chittenden, Ph.D., of New Haven, on the subject, "Some Problems of Intermediary Metabolism." Dr. Chittenden attracted a large number of hearers who listened to a discourse illustrating the difficulty of some of the medical problems which lie immediately before us. It was a peculiarly happy choice that Dr. Chittenden should have been selected for this lectureship, since he exemplifies the type of investigation which no doubt for many years to come will occupy the attention of many of the best minds in the medical profession. The annual address was given by Dr. Charles A. Drew of the Bridgewater State Farm, and drew attention to certain facts of much importance to the medical profession. Dr. Drew's address was followed by the annual dinner, which, as we have indicated, was attended by a larger number than ever before.

Dr. Arthur T. Cabot, President of the Society, in his introductory remarks, at the conclusion of the dinner, laid stress upon the necessity of pioneer work and of pushing the "forward men still further forward." Lieut.-Gov. Curtis Guild was the first speaker. After referring in a humorous manner to the difficulties of his position in his capacity as Lieutenant-Governor, he spoke eloquently of the great progress which has been made in this state in many methods of medical treatment, referring to the treatment of the insane, and particularly to Dr. W. E. Fernald's work in the care of the feeble-minded, whom he characterized as "first among the foremost in his line." Finally he insisted upon the absolute necessity of good citizenship among physicians, and spoke with a certain measure of reproach of the fact that of four thousand voters in the residence part of Boston, many of them physicians, but one thousand exercised their right of suffrage at a recent election. The Rev. Dr. Worcester of Emmanuel Church spoke of the work undertaken by his parish in caring for tuberculous families, and in attempting to do its share in the eradication of the disease. He begged for further cooperation among physicians and drew a picture of the "perfect physician" in a manner which apparently met with no dissent among his listeners. Mr. Louis D. Brandeis of the Suffolk Bar spoke feelingly of the lack of interest which the medical profession showed in politics. He insisted that if the reforms for which we are clamoring in the way of further accommodation for tuberculosis and similar matters are to be effected, it must be through the political influence of physicians. He urged in conclusion that physicians take steps to procure for themselves the political recognition

which the character of their work in the community demands.

Except for the heat which was unavoidable and the somewhat undue length of certain of the after-dinner speeches, there was nothing to mar the success of this last meeting of the society. It will pass into history as in some respects the most successful yet held in exciting the interest of the members.

MEDICAL NOTES.

A JOURNAL OF SURGERY, GYNECOLOGY, AND OBSTETRICS. — A new Journal of Surgery, Gynecology and Obstetrics will be published in Chicago, the first issue appearing about July 1.

FELLOWSHIP FOR JEFFERSON MEDICAL COLLEGE. — It is announced that Dr. W. W. Keen has given $5,000 to the Jefferson Medical College as a memorial to his wife, to be known as the Corinna Borden Keen Research Fellowship. Accumulated interest when it reaches $500 is to be used by a selected graduate of the college for the prosecution of original research, approved by the faculty.

OFFICERS OF THE AMERICAN LARYNGOLOGICAL RHINOLOGICAL AND OTOLOGICAL SOCIETY. — At the Eleventh Annual Meeting of the American Laryngological, Rhinological and Otological Society, held in Boston, Mass., June 5, 6 and 7, 1905, the following officers were elected for the ensuing year: President, Dr. James E. Logan of Kansas City, Mo.; Vice-Presidents, Dr. Thomas H. Halsted of Syracuse, N. Y., Dr. William L. Ballenger of Chicago, Ill., Dr. H. Bert Ellis of Los Angeles, Cal., and Dr. Henry L. Myers of Norfolk, Va.; Secretary, Dr. Wendell C. Phillips of New York; Treasurer, Dr. Ewing W. Day of Pittsburg, Pa.; Council, Dr. Frederic C. Cobb of Boston, Mass., Dr. James F. McKernon of New York, and Dr. H. W. Loeb of St. Louis, Mo.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 14, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 20, scarlatina 14, typhoid fever 14, measles 30, tuberculosis 33, smallpox 0.

The death-rate of the reported deaths for the week ending June 14, 1905, was 17.58.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 10, 1905, was 188, against 164 the corresponding week of last year, showing a increase of 24 deaths, and making the death-rate for the week 15.96. Of this number 95 were males and 93 were females; 180 were white and 8 colored; 117 were born in the United States, 66 in foreign countries, and 5 unknown; 36 were of American parentage, 121 of foreign parentage, and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 22 cases and 2 deaths; scarlatina, 27 cases and 1 death; typhoid fever, 12 cases and no deaths; measles, 17 cases and 1 death; tuberculosis, 46 cases and 27 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 19, whooping cough 1, heart disease 23, bronchitis 4, and marasmus 2. There were 9 deaths from violent causes. The number of children who died under one year was 17; the number under five years, 27. The number of persons who died over sixty years of age was 51. The deaths in public institutions were 69.

Cases of cerebrospinal meningitis reported for the week were 7, the deaths, 5.

GRADUATION OF NURSES, LONG ISLAND HOSPITAL, BOSTON HARBOR. — A class of seventeen nurses was graduated from the Long Island Hospital Training School on June 10. This training school is now definitely established and is producing nurses who are taking a high place in their calling.

CANCER RESEARCH. — Dr. E. E. Tyzzer of the Pathological Department of the Harvard Medical School has been appointed director of the Harvard Cancer Commission in place of Dr. E. H. Nichols who has resigned the position which he has ably filled since the foundation of the commission.

SUMMER DENTISTRY CLINICS. — The Harvard Dental School will conduct free clinics during the summer in all departments of dentistry with the exception of orthodontia. The need of this charity is manifest, and no doubt the example set by the Harvard Dental School will be followed in other cities.

APPOINTMENT OF DR. AUGUST HOCH. — Dr. August Hoch, for twelve years connected with the McLean Hospital at Waverley, Mass., has been appointed a successor to Dr. C. E. Atwood at Bloomingdale, N. Y. Dr. Atwood has resigned his position to prosecute his studies abroad. Dr. Hoch becomes the first assistant physician and no doubt will continue his most valuable studies begun at the McLean Hospital.

NEW YORK.

Yellow Fever from Colon. — On the arrival at quarantine on June 7 of the steamer *Seguranca*, from Colon, one of the passengers, Frank O'Leary, aged twenty-eight, of Buffalo, N. Y., was found to be ill, with what proved to be yellow fever, and on June 9 he died of the disease in the hospital on Swinburne Island.

Low Death-rate. — A low record in the death-rate was reached in the week ending June 3, when the rate was 16.11, or .62 below the previous best record, in one of the weeks of May, 1900. For the corresponding week in 1904 the death-rate was 17.19. During the week 60 deaths from epidemic cerebrospinal meningitis were reported, as against 63 in the corresponding week in 1904.

State Hospitals for Insane. — Governor Higgins has announced his appointments for the local boards of managers of the various state hospitals for the insane, under the new law re-establishing such boards. Among those appointed are ex-Mayor Low for the Manhattan Hospital and ex-Mayor Schieren of Brooklyn for the Long Island Hospital. The wife of Dr. Francis P. Kinnicutt is also to be one of the managers of the Manhattan Hospital.

State and City Water Commissioners. — The members of the new State and City Water Commissioners created by the recent Legislature have now been appointed by the Governor and Mayor, respectively. One of the members of the State Commission is Dr. E. J. Lederle, who was for a number of years chemist to the New York City Health Department and afterwards its president under the Low administration. The Commission has an appropriation of $40,000 with which to carry on its work. Among its duties will be to make an investigation and report to the Legislature, as part of its first annual report, concerning the available sources of water in the State, the present and future needs of each municipality, the present disposition of sewage, and also the advisability, the time required and the probable expense incident to the construction of a state system of water supply and sewage disposal. The City Water Commission consists of three members, at a salary of $12,000 a year, constituting a permanent local water board. They are required to investigate and report to the Board of Estimate and Apportionment upon the available sources of water supply and, upon the approval of their plans, to carry on the work of enlarging the supply in accordance with the requirements of the city. In making his appointments to the Commission, Mayor McClellan selected the men from three lists of three names each, submitted at his request by the Board of Fire Underwriters, the New York Chamber of Commerce, and the Manufacturers' Association of Brooklyn.

Guild of St. Barnabas. — On Saturday evening, June 10, a meeting of the New York Branch of the St. Barnabas Guild for Nurses, a society composed of trained nurses, was held in St. Thomas's Church. Bishop Cortland Whitehead of Pittsburgh presided, and an address was made by the Rev. Dr. Ernest M. Stires, the rector of the parish, who has just been elected Chaplain of the Branch. When residing in Chicago, Dr. Stires was instrumental in organizing the branch of the Guild there and was its first Chaplain. On Sunday the eleventh, a special service in behalf of the Guild was held in St. Thomas's Church, when Bishop Thomas F. Gailor of Tennessee preached the sermon.

Prevention of Pollution of Streams. — Governor Higgins has signed the bill creating a commission, composed of one member each from the cities of Yonkers and Mount Vernon and the town of White Plains, to provide for the construction of a two-million-dollar trunk sewer through the valley of the Bronx, and emptying into the Hudson River, the object of which is to prevent the pollution of the streams of Westchester County. This Bronx Valley sewer is to be seventeen miles long, and it will be the most extensive public improvement ever undertaken in Westchester County. It will drain the entire territory from White Plains to Mount Vernon, and from thence eastward to Yonkers, taking in the Seventh Ward of the city of Yonkers. It will then pass under the latter city by means of a tunnel, and have its outlet into the Hudson at the lower boundary line of Yonkers. The commission is to be headed by the mayor of Yonkers, and the bill stipulates that the whole work must be completed within three years.

Mortality for the Quarter. — The condensed quarterly report of the Bureau of Records of the Health Department for the quarter ending December, 1904, which has just been issued, shows that the number of deaths during the three months was 16,935. Estimating the population at 3,838,024, this gives a death-rate of 17.52 per thousand, as against an average number of 15,603 deaths for the corresponding quarter of the preceding five years; which, on an estimated population of 3,540,664, gives a death-rate of 17.49 per thousand. There was, therefore, an increase

of 0.03 of a point above the quinquennial average. In comparing the deaths in this quarter with the preceding quinquennial average of the corresponding quarters, the noteworthy increases are found to have been among the diseases affecting adults and old people, as follows: Influenza, 32; pulmonary tuberculosis, 70; cancer, 108; apoplexy, 66; heart disease, 221; Bright's disease and nephritis, 144; pneumonia, 445; deaths in those over five years of age, 1,384; all ages, 1,332. Continuing the comparison, the following diseases and ages show decreases as follows: Typhoid fever, 21; malarial fever, 20; smallpox, 7; measles, 16; whooping cough, 37; diphtheria and croup, 103; acute bronchitis, 83; under five years of age, 52. Scarlet fever showed an increase of 51 above the quinquennial average.

Miscellany.

PROPRIETARY THERAPEUTICS.

H. C. WOOD, JR., Philadelphia,[1] considers that the increasing use of proprietary drugs is exceedingly detrimental to the best interests of medicine. He refers more particularly to nostrums or mixtures and not to definite chemical compounds which may be the property of some manufacturing druggist. While these latter may not be an unmixed blessing, whatever objections he has to them are based on essentially different grounds. The great fundamental objection to nostrums is that to all set and unalterable formulæ, they must necessarily be a misfit in the ever-changing aspects of disease. Another is their secret or semi-secret nature, and this is all the more dangerous when it is masked by a deceptive show of frankness. There is no universal assurance that even the alleged composition is the true one, and some of those that publish a formula attempt to obscure the real nature of their mixtures, by using uncommon names of well-known drugs or including some unfamiliar ingredient which may be assumed to have some special virtue. A common defense of these nostrums is that of their value as property. Wood asks: How have the manufacturers acquired such valuable property rights? Have they hired men to be sick to prove the virtues of their compounds, or has the medical profession been willing to utilize human suffering for the benefit of the nostrum vender? The reasons why these nostrums are so profitable to their manufacturers are, Wood thinks, the imperfect therapeutic instruction given in our medical schools and the extremely lavish and often very shrewd advertising they receive. It has been estimated that $600,000 is expended annually in advertising secret nostrums, but Wood considers this far short of the true amount. These hundreds of thousands of dollars are paid, he says, out of the physicians' pockets and their patients' lives, and yet the medical profession is blind enough to let the process continue without complaint. The nostrum venders, he says, at a conservative estimate, have obtained control of the reading columns of two thirds of the medical journals of this country, and it is time, he thinks, to call a halt.

[1] Journal A. M. A., June 10, 1905.

Correspondence.

HOSPITAL RECORDS AS EVIDENCE IN COURTS.

BOSTON, MASS., 409 Marlborough Street,
June 5, 1905.

MR. EDITOR: There have been so many inquiries in regard to the meaning of the bill known as "A bill to require the keeping of records in certain hospitals," which was passed by the last State legislature, as well as for copies of the same, that I pray your indulgence for an opportunity to answer them, which I will do as briefly as possible.

Prior to May 18, 1904, when the Supreme Court of Massachusetts handed down a decision in the Case of Cashin *v.* N. Y., N. H. & H. R. R., Mass. Reports, Vol. 185, page 543, hospital records were admitted in the various courts of the Commonwealth as evidence, without, excepting in rare instances, compelling the attendance at court of the maker of the records.

"The books offered by defendant as records of hospitals which were mentioned in the opinion, were books kept in the Mercy Hospital of Springfield and the Springfield hospital, in both of which the plaintiff was treated after he was injured."

The opinion, as far as it refers to the admissibility of hospital records, is as follows:

"In the case of the books which were offered as records of the respective hospitals, it was not contended that as to either institutions the records were kept under any requirement of law.

"They were, therefore, not public records, and were not admissible unless supported by the testimony of the one who made them, if that person was still alive and capable of being produced to testify," and quotes Kennedy *v.* Doyle, 10 Allen, 161–165; Townsend *v.* Pepperell, 99 Mass. 40, as not being inconsistent with the decision.

This decision was so far-reaching that, unless relief was obtained by a new enactment of law, physicians connected with hospitals would be subjected to great inconvenience, or the records would be made in an incomplete way by omitting the name of the maker, or by omitting the name of the physician or physicians in charge.

To remedy as far as possible the difficulty and to give once more a standing to records in court, a bill was introduced upon my petition in the State Senate, and was known as Senate Bill 182. This bill was based upon the part of the decision of the Supreme Court which says, "It was not contended that as to either institution the records were kept under any requirement of law. They were, therefore, not admissible," etc. This bill endeavored to provide that hospitals should keep records as a requirement of law, and these would, therefore, be admissible.

No effort was made to provide how records should be kept or to interfere in any way with hospital management, but simply to provide that whatever was done should be available without incommoding those who, at the present, or in the past (for thirty years) had to do with the records.

Before the bill was printed, I applied to Dr. E. P. Joslin for an opportunity to present the bill with a five-minute explanation at a meeting of the medical societies. The committee in charge decided against such a presentation. They, however, arranged for a meeting which was held at Dr. Gay's office and which was attended by Drs. Gay, Geo. B. Shattuck, Henry B. Howard, Geo. H. M. Rowe, F. B. Lund, E. P. Joslin and myself. The bill was fully considered and at the hearing before the Legislative Committee, two weeks afterward, the bill was changed as suggested by these gentlemen, and some changes were made at the suggestion of Robert B. Boit, Esq., and Dr. Copp, of the State Board of Insanity.

The bill which was passed by the Legislature and approved by Governor Douglas, on April 25, is known as Chapter 330, Acts and Resolves of 1905, and is as follows:

AN ACT TO REQUIRE THE KEEPING OF RECORDS BY CERTAIN HOSPITALS.

Be it enacted, etc., as follows:

"SECTION 1. Hospitals supported in whole or in part by contributions from the Commonwealth or from any municipality, incorporated hospitals offering treatment to patients free of charge, and incorporated hospitals conducted as public charities, shall keep records of the cases under their care and the history of the same in books kept for that purpose.

"SECT. 2. Such records shall be in the custody of the person in charge of the hospital, and shall be admissible as evidence in the courts of the Commonwealth as to all matters therein contained.

"SECT. 3. Section 17 of Chapter 35 of the Revised Laws shall not apply to such records, and they shall not be open to public inspection until they are produced in court by the person having the custody of the same."

Thanking you for your courtesy and help in this matter, I remain,

Very truly yours,

FRANCIS D. DONOGHUE, M.D.

FIFTEENTH INTERNATIONAL MEDICAL CONGRESS.

ST. JOSEPH, MO., June 5, 1905.

MR. EDITOR: Anticipating that a large number of American physicians will attend the Fifteenth International Medical Congress to be held in Lisbon, Portugal, April 19–26, 1906, the undersigned has completed arrangements for the chartering of a first-class vessel, upon which the American delegation may sail as one party. In this way better accommodations can be secured at a more reasonable price; the social features in the trip will be enhanced and each individual surrounded by those who are personally congenial. Additional security and consequently added pleasure will be obtained, as the party will be in charge of a traveling conductor who is thoroughly conversant with the language and customs of the countries to be visited *en route*.

As there will doubtless be some differences as to the choice of the routes, depending on individual inclination and previous opportunities for foreign travel, a number of returning routes have been selected, the itineraries of which, although separate from the journey proper, have been arranged so that the principal points may be visited together. Those who desire may include a Mediterranean trip; excursions to Madrid, Corunna, Vigo, Oporti, the Escorial, Toledo, Seville and Cordova have been arranged, as well as an opportunity to return leisurely through Italy, France and Great Britain.

Hotel reservations for the party have also been arranged for in the best hostelries of Lisbon, and in addition a number of floating hotels will be anchored in the Tagus during the entire session of the Congress, thus enabling visitors who desire to enjoy all the comforts of a superb hotel system on the water.

The round trip rates from New York will run from $275 up, according to the tour selected, including all expenses.

Itineraries of the various tours are being prepared and will soon be ready for distribution. It is important that all who contemplate taking this trip should register at once so that no disappointment in hotel reservation may be experienced. The final arrangements will, as heretofore, be in the hands of the well-known conductors, Thos. Cook & Sons, which insure perfect and complete service, thus relieving the passenger from all annoying details incident to the voyage. Those delegates who attended the last Congress in Madrid, sailing from New York on the *Princess Irene*, will remember the excellent service afforded them.

Further information, reservations and copies of itinerary may be obtained by addressing

CHARLES WOOD FASSETT, M. D.,
St. Joseph, Mo.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 3, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever	Cerebro-spinal Meningitis.
New York	3,908,644	1,220	385	27.21	16.31	2.21	.33	4.92
Chicago	1,990,750	466	144	24.89	10.51	1.71	1.50	.21
Philadelphia	1,467,968	450	115	28.44	8.89	2.00	2.89	.22
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	181	69	23.76	7.17	.55	1.66	—
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,377	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	63	14	20.63	12.69	1.58	—	4.76
Boston	617,950	200	37	18.50	7.50	1.50	.50	3.00
Worcester	136,925	39	17	7.69	12.82	2.56	—	2.56
Fall River	119,349	38	20	23.67	10.52	2.63	2.63	—
Lowell	104,402	22	10	27.27	9.09	—	—	9.09
Cambridge	100,998	20	5	5.00	25.00	5.00	—	—
Lynn	73,875	21	3	4.76	9.52	—	—	4.76
Lawrence	72,348	32	7	31.25	21.87	—	—	18.75
Springfield	72,030	23	2	21.74	8.69	—	—	4.35
Somerville	70,413	22	3	27.27	9.09	—	4.54	9.09
New Bedford	68,863	21	6	19.04	9.52	—	—	—
Holyoke	50,538	24	8	16.67	29.16	—	—	8.33
Brockton	46,601	7	2	—	—	—	—	—
Newton	39,310	10	1	10.00	30.00	—	—	—
Haverhill	39,061	9	1	—	11.11	—	—	—
Malden	37,305	10	4	20.00	10.00	—	10.00	—
Salem	37,188	14	3	7.14	—	7.14	—	—
Chelsea	36,499	10	1	20.00	—	—	—	—
Fitchburg	36,335	9	2	22.22	—	—	—	—
Taunton	34,577	12	1	8.33	—	—	—	—
Everett	30,209	10	8	10.00	—	10.00	—	—
North Adams	29,201	4	—	—	—	—	—	—
Quincy	26,798	2	—	—	—	—	—	—
Gloucester	26,121	11	3	9.09	—	—	—	—
Waltham	25,797	9	1	33.33	11.11	—	—	22.22
Brookline	23,576	6	2	—	—	—	—	—
Pittsfield	22,870	10	1	10.00	10.00	—	—	10.00
Medford	21,956	3	1	66.67	—	—	—	—
Chicopee	21,692	6	4	—	16.67	—	—	—
Northampton	20,314	7	1	14.30	—	—	—	—
Beverly	15,807	6	—	—	16.67	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	3	1	33.33	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	1	—	100.00	—	100.00	—	—
Hyde Park	14,500	5	1	40.00	—	—	—	40.00
Newburyport	14,478	4	1	25.00	—	—	25.00	—
Woburn	14,315	3	1	—	33.33	—	—	—
Melrose	13,819	7	1	28.60	14.30	—	—	—
Westfield	13,809	3	—	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	2	0	50.00	—	—	—	—
Revere	13,609	4	1	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,324	—	—	—	—	—	—	—
Southbridge	11,716	5	1	60.00	—	—	—	40.00
Watertown	11,575	2	1	50.00	—	—	—	—
Weymouth	11,350	1	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,037; under five years of age, 880; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 748; acute lung diseases 373, consumption 350, scarlet fever 21, whooping cough 24, cerebrospinal meningitis 93, smallpox —, erysipelas 12, puerperal fever 13, measles 33, typhoid fever 32, diarrheal diseases 114, diphtheria and croup 45.

From whooping cough, New York 6, Chicago 15, Philadelphia 2, Baltimore 1. From scarlet fever, New York 14, Chicago 1, Philadelphia 1, Providence 1, Boston 2, Holyoke 1, Medford 1. From crebrospinal meningitis, New York 60, Chicago 1, Philadelphia 1, Providence 3, Boston 6, Lawrence 6, Lowell 2, Somerville 2, Holyoke 2, Waltham 2, Hyde Park 2, Southbridge 2, Worcester 1, Lynn 1, Springfield 1, Pittsfield 1. From erysipelas, New York 7, Chicago 1, Philadelphia 1, Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending May 27, 1905, the death-rate was 14.6. Deaths reported 4,371; acute diseases of the respiratory organs (London) 92, whooping cough 133, diphtheria 38, measles 152, smallpox —, scarlet fever 30.

The death-rate ranged from 6.2 in Hornsey to 20.8 in Smethwick; London 14.6, West Ham 10.8, Brighton 13.9, Southampton 10.0, Plymouth 15.7, Bristol 15.0, Birmingham 15.7.

Leicester 11.4, Nottingham 14.1, Birkenhead 18.4, Liverpool 18.9, Wigan 20.5, Bolton 14.6, Manchester 16.8, Salford 17.6, Halifax 17.8, Bradford 14.0, Leeds 15.6, Hull 14.7, Sheffield 17.0, Newcastle-on-Tyne 15.0, Cardiff 9.3, Rhondda 20.4, Merthyr Tydfil 19.8, Kings Norton 7.5, Middlesbrough 18.0.

METEOROLOGICAL RECORD.

For the week ending June 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 28	29.86	74	83	64	70	37	54	W	W	5	8	O.	C.	0
M. 29	29.94	72	83	61	46	46	46	W	S W	10	16	C.	O.	0
T. 30	29.90	63	73	53	71	56	64	N E	N	10	4	O.	C.	.14
W. 31	30.10	56	60	52	40	74	57	N E	E	14	8	C.	C.	0
T. 1	30.06	52	57	48	94	76	84	S E	E	4	5	O.	F.	0
F. 2	29.88	61	76	46	62	76	69	S W	S W	6	14	C.	R.	.02
S. 3	30.01	62	68	55	57	70	64	S W	N E	24	4	O.	C.	0
☞	29.98		71	54			63							.16

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for the week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JUNE 7, 1905.

SAWTELLE, H. W., surgeon. Relieved from duty at Purveying Depot, New York, and directed to proceed to Washington, D. C., for special temporary duty. June 1, 1905.

STONER, G. W., surgeon. To proceed along Canadian border as far as Sault Ste. Marie, Mich., stopping at intermediate points, especially Quebec, Montreal, Niagara Falls and Detroit, on special duty. June 3, 1905.

OAKLEY, J. H., passed assistant surgeon. Detailed as inspector of unserviceable property at the U. S. Marine Hospital, Port Townsend, Wash. June 2, 1905.

CLARK, TALIAFERRO, passed assistant surgeon. Granted leave of absence for three days from June 7, 1905, under paragraph 191 of the regulations.

KERR, J. W., passed assistant surgeon. Granted leave of absence for one month from June 15. June 1, 1905.

SALMON, T. W., assistant surgeon. Granted leave of absence for five days from June 4, 1905, under paragraph 191 of the regulations.

SPRATT, R. D., assistant surgeon. Relieved from duty at New Orleans, La., and assigned to duty at Louisville, Ky., effective June 15, 1904. June 5, 1905.

PORTER, J. Y., sanitary inspector. Granted leave of absence for seven days from June 20. June 2, 1905.

BEAN, L. C., acting assistant surgeon. Granted leave of absence for three days from June 8. June 7, 1905.

MCCONNELL, E. F., acting assistant surgeon. Relieved from duty at Nuevitas, Cuba, and directed to proceed to New York and report to Surgeon G. W. Stoner, Ellis Island, for duty. June 3, 1905.

MASON, W. C., acting assistant surgeon. Granted leave of absence for five days from June 26. June 6, 1905.

RANSOM, S. A., acting assistant surgeon. Granted leave of absence for two days from May 3. June 6, 1905.

ACHENBACH, J., pharmacist. Granted leave of absence for sixteen days from June 13. June 6, 1905.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 10, 1905.

E. R. STITT, surgeon. Detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., June 5, and ordered to the naval hospital, Canacao, P. I., sailing from New York, N. Y., about June 10.

E. O. J. EYTINGE, assistant surgeon. Ordered to the naval hospital, New York, N. Y.

W. G. FARWELL, assistant surgeon. Detached from the naval hospital, New York, N. Y., and ordered to the "Brooklyn."

L. W. BISHOP, passed assistant surgeon. Detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the "Dubuque."

J. F. MURPHY, assistant surgeon. Detached from the "Dubuque," and ordered to continue duties on the "Hancock."

G. M. MAYERS, assistant surgeon. Ordered to Washington, D. C., for examination for promotion, and then to wait orders. June 19.

The following passed assistant surgeons have been ordered to report to the president of the naval and medical examining boards, for examination for promotion June 26, 1905, and then to wait orders: F. M. FURLONG, J. F. LEYS, W. M. GARTON, F. L. BENTON and J. C. THOMPSON.

SOCIETY NOTICE.

ANNUAL MEETING OF THE AMERICAN MEDICAL SOCIETY FOR THE STUDY OF INEBRIETY AND ALCOHOL. — The thirty-fourth annual meeting of this society will be held in the hall of the Atkinson School Building, Portland, Ore., July 12 and 13, 1905, beginning at 9 A.M. The president's address by Prof. W. S. Hall of the Northwestern University of Chicago, Ill., will be a review of the progress of the study of the action of alcohol during the year. The Committee on the Influence of Alcohol in Literature and History will present a report by its president, Dr. John Madden. The Committee on Heredity as a Cause in the Disease of Drug and Spirit Taking will report, and the Committee on Patent Medicines will also submit a statement of their work.

T. D. CROTHERS, M. D., *Secretary.*

RECENT DEATHS.

DR. DE WITT G. LIPPINCOTT of Campbell Hall, Orange County, N. Y., died on June 8, at the age of forty-four years.

DR. EDWARD L. NEWHALL, of Lynn, died June 12. He was eighty-three years old and was born in Lynn. He graduated at the Harvard Medical School in 1848, and studied subsequently in Dublin and Paris. He had practised in Lynn more than fifty years. He was twice married, and leaves three sons who are physicians, Drs. Herbert W., Edward B., and Harvey N. Newhall; a fourth son, Charles S., is a mining engineer in Colorado, and there are two daughters.

BOOKS AND PAMPHLETS RECEIVED.

A System of Clinical Medicine dealing with the Diagnosis, Prognosis, and Treatment of Disease for Students and Practitioners. By Thomas D. Savill, M.D. London. Vol. II. Illustrated. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1905.

An Emergency Poisoning Case. By John W. Wainwright, M.D. Reprint.

University of California Publications. Physiology. On an Improved Method of Artificial Parthenogenesis. (Third Communication.) By Jacques Loeb. The Diuretic Action of Certain Haemolytics and the Influence of Calcium and Magnesium in Suppressing the Haemolysis. (Second Communication.) By John Bruce MacCallum. The Action of Pilocarpin and Atropin on the Flow of Urine. By John Bruce MacCallum. Berkeley. 1905.

Sight and Hearing Tests. Extract from School Report of Quincy, Mass. By Supt. Frank E. Parlin and Dr. David W. Wells.

The Comparative Anatomy of the Anterior Cerebral Artery. By William W. Sisem, A.M., M.D. Reprint.

Quarterly Report of the Board of Health of the Department of Health of the City of New York for the Quarter ending June 30, 1904.

Annual Report of the Mount Sinai Hospital of the City of New York, January, 1905.

Ueber weitere Fortschritte in der Moment-Röntgen-photographie. Von Professor H. Rieder und Dipl. Ing. Dr. Jos. Rosenthal. Reprint.

Ueber eine Röntgenröhre zur Erzielung besonders kontrastreicher Bilder. Von Diplom-Ingenieur Dr. phil. J. Rosenthal. Reprint.

The Diagnosis of Diseases of Women. A Treatise for Students and Practitioners. By Palmer Findley, B.S., M.D. Second Edition, Revised and Enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1905.

Transactions of the American Pediatric Society. Sixteenth Session. Volume XVI.

Abstract Report of the Commission for the Study and Treatment of "Anemia" in Porto Rico. December 1, 1904.

Original Articles.

EYESTRAIN, ITS IMPORTANCE, AND ITS LIMITATIONS.*

BY G. L. WALTON, M.D., BOSTON.

THE question of eyestrain and its effects upon the nervous system is still under discussion. The most conservative allow that headache may sometimes be caused by eyestrain, but limit the application of this principle to the most obvious cases, eliminating cases in which there is no pain in the eyes, no conjunctivitis, no pain during the use of the eyes, and those in which no error of refraction can be demonstrated by crude tests without a mydriatic. The enthusiast, on the other hand, finds in eyestrain, not only a potent, but a curable, factor in the production of headache, epilepsy, chorea, indigestion, mental disturbance and nutritional changes, local as well as general, and in glasses a panacea for many of these ills. While the former gives, perhaps, too little weight to clinical evidence, the latter draws, perhaps, too sweeping inferences from insufficient evidence, is inclined to overlook other sources of nervous and mental disturbance, and especially to disregard the constitutional taint which predisposes to nervous and mental disturbance, a taint of which the error of refraction is merely one sign.

At the risk of being accused of blowing hot and cold on the same proposition, I wish to call attention, on the one hand, to the neglect on the part of the profession to recognize and adequately treat the cases in which headache does result from eyestrain, and on the other hand, to speak of the constitutional tendency underlying not only such disorders as epilepsy, but also that variety of headache perhaps most commonly and most erroneously attributed to eyestrain, namely, the constitutional headache of the deviate.

My experience, while confirming the prevailing scepticism regarding the cure of epilepsy and chorea by glasses, tends to support the proposition that, after eliminating such obvious causes as organic brain or frontal sinus disease and well-recognized toxic conditions, eyestrain is one of the commonest, if not the commonest, exciting cause of headache in the otherwise healthy, particularly of the frequently recurring headaches among the young and middle-aged, generally frontal, or frontal and occipital, sometimes unilateral, sometimes accompanied by nausea and blurred vision, and sometimes replaced by the latter. This class, which I shall term migranoid, includes the paroxysmal form known as migraine, sick headache or blind headache, which is not infrequently replaced after youth has passed by headaches showing these characteristics in moderate degree and of less paroxysmal violence. These headaches generally have a run of several hours to a day with intervals of freedom, do not, as a rule, keep the patient awake, but often disappear during sleep. They appear sometimes on waking in the morning, sometimes during the day. Eyestrain in these cases may be, and probably is, superimposed upon an inherent predisposition, but notwithstanding this fact I have come to believe that the adjustment of glasses will do more for their relief than any other treatment, though absolute disappearance of the tendency can hardly be expected under any treatment.

Whenever a young or middle-aged individual bears a frown and has been since childhood subject to periodic, frontal, or fronto-occipital headaches, with or without nausea or vomiting, and with or without twinkling scotoma, the suspicion that refractive error is the exciting cause of the trouble should not be dismissed on account of the statement that the frown is a family characteristic, and that the pain is not directly connected with overuse of the eyes. The headache and frown are relieved in such cases upon the use of spectacles so often, and to so marked a degree, that little weight can be given to these arguments.

There is another variety of headache which may be fairly well distinguished from these migranoid headaches, namely, the headache occurring at intervals of many months, even years, only on mental exhaustion, particularly exhaustion from continued application to a single subject. This headache is also apt to be frontal, but is, as a rule, unaccompanied by nausea or blur. This headache, which may be termed brain fag headache, is probably not due to, or excited by, eyestrain. Of the constitutional headache I shall speak further on.

The etiology, pathology, and treatment of migraine has been made the subject of extended investigation and discussion. The general trend of such investigation is illustrated in a recent contribution by Levi.[1] This author places the center for the phenomenon in the floor of the fourth ventricle, and explains the visual, auditory and other accompaniments by tracing the central connections between the fibers of the trigeminal nerve and those of the other cranial nerves involved. Excitability of this center he regards as hereditary, and compares the attacks and remissions to those of gout and uremia. He cites as accessory causes psychic excitation, sensorial or visceral, emotion, and exogenous intoxication, gastric disturbance and constipation.

The treatment, he states, should be directed toward lessening the excitability, increasing the resistance, and avoiding or diminishing the exciting causes.

I have no special quarrel with this line of reasoning, but would suggest that refractive error be given a prominent place, in fact, the prominent place, among the exciting causes, and that a due amount of effort be made in each case to remove this exciting cause. To neglect this effort is to ignore without investigation a mass of evidence collected by competent observers.

It occurred to me that some light might be thrown on this subject by ascertaining the fre-

*Read before the Boston Society of Psychiatry and Neurology, May 18, 1905.

[1] Rev. Neurologique, Feb. 15, 1905.

quency of headache among those totally blind from infancy, in other words, among those in whom the element of eyestrain could be practically eliminated. The results were very suggestive and sufficiently striking to encourage further study. This study was made through the kindness of Mr. Anagnos, Superintendent of the Perkins Institute for the Blind at Boston, of Mr. Campbell, Superintendent of the Experimental Station for Adult Blind at Cambridge, and Mr. E. E. Allen, Superintendent of the Pennsylvania Institute for the Blind at Philadelphia.

By way of establishing a control, I have questioned, regarding headache, 100 healthy individuals with sight, including 68 members of the Boston Normal School of Gymnastics, through the kindness of Miss Homans. Of these 100 individuals, only 31 (31%) had never had headaches. Of the remaining 69 cases, 24 (35%) had occasional headaches (less often than once in three months); 45 (65%) were subject to frequent headaches. The prevalent seat was the forehead; the duration, in general, varied from a few hours to a day or two, and the headache disappeared generally during the night. In the cases of frequent headache scotoma and nausea were common. Unilateral seat was not infrequent. In 17 cases typical attacks of sick headache with nausea, vomiting and blur had appeared at some period in the life. The proportion of these attacks was practically the same in the two sexes, contrary to the popular opinion.

By way of still further control, 42 cases were examined who were either partially blind (whether the blindness was acquired or congenital), or who suffered from acquired blindness coming on at an age after the habit of fixation and convergence was well established. The proportion of individuals in this class who had never suffered from headache was 29%, that is, practically the same as among persons having sight. A further reason for including this class in the examination was to cover the question of surroundings and diet, since these conditions were the same as in the third class examined.

The third class contained individuals totally blind since infancy. In this class, therefore, eyestrain was reduced to the lowest possible terms. Of this number, 90 were examined, and of these 90 cases 59, or 66%, promptly stated that they had never had headaches, in marked contrast with the 31% of individuals with sight, and the 29% of the cases with partial and acquired blindness.

When the headaches were present, they recurred with about the same frequency as in individuals having sight. In 38% they occurred less than once in three months, in 62% oftener than that. The prevalent seat of headache was also in the forehead, the duration was generally a matter of hours to a day or two. Nausea was not uncommon, especially in the cases of frequent recurrence. Nothing allied to scintillating scotoma could be elicited, unless the statement of one individual that he felt a "prickling in the eyes" be so regarded. In five instances the headache was unilateral. The migranoid character was sufficiently suggested to practically *negative* the supposition that *all* migraine results from eyestrain.

It should be added that the answers of a number of the blind children suggested that they were describing attacks of pain in, and directly about, the eyes, rather than true headache, so that the number of headaches recorded among them was probably too large rather than too small.

It is interesting to note also in this connection that some of the congenitally blind individuals stated that they were in the habit of mentally fixing their gaze upon their work. This would indicate an instinctive tendency to co-ordinate the accommodative mechanism with that controlling the hands. It is possible, therefore, that even in those totally blind from infancy, accommodative or fixation effort is not necessarily absent, but it must surely play a very insignificant part.

These figures would indicate then that headache is twice as common among those subject to eyestrain as among those in whom this element is wanting. Conversely, it would seem fair to infer that one-half the headaches occurring in ordinary individuals in health are due to eyestrain.

One argument frequently advanced against eyestrain as causing migraine is worthy of being taken up in detail, namely, the fact that glasses have been already tried without relief. *In such cases it will often be noted that the glasses have been used only on occasion; that eyeglasses, not spectacles, have been worn; that no care has been taken in the centering of the glasses, and no care in keeping them properly adjusted; that the patient has taken no pains to look through their center instead of from side to side, and that he has not given up the effort of straining to see objects beyond his legitimate range, and even, perhaps, that the glasses have been prescribed by someone not thoroughly conversant with this branch of practice.*

Here are six commonplace and legitimate reasons for nonefficiency of glasses, any one of which may suffice, but several or all of which are likely to co-exist, to say nothing of numerous technical difficulties.

If the patient is to reap the full benefit of ocular treatment these considerations, at least, must be borne in mind by the neurologist as well as the oculist.

With regard to the question of *eyeglasses or spectacles*, an occasional nose may be formed so that eyeglasses will maintain all day the exact angle desired for the correction of astigmatism, but in many more cases the reverse will be true, especially in case of the old-fashioned glasses, and I have more than once seen the simple change from eyeglasses to spectacles work a miracle. The so-called Shuron glasses, I am informed, are less objectionable than the older forms, but do not really replace spectacles.

The *occasional use of glasses* forces repeated change from accommodative relaxation to accommodative strain, a change which naturally handi-

caps the result which is to be hoped for only through relief of accommodative strain. A single accommodative over-effort may interfere to a certain extent with the beneficial effect of spectacles, and many such over-efforts in the course of the day will surely do so. Dr. Dixon in a recent article[2] has emphasized the importance of wearing glasses while resting the eyes as well as while using them, because complete rest is impossible for the uncorrected, imperfect eye, even while looking off.

It is not generally known outside ophthalmological circles that the *centering of glasses* is of paramount importance, but continuous discomfort may be produced by moderate misplacement of a strong, spherical lens, or of a cylindrical lens, with other than a horizontal axis.

Care of glasses is also important. In a case of astigmatism of only one half a diopter, a deviation of 5° from the proper angle may produce migranoid headache in the susceptible individual. Spectacles should, therefore, be chosen in which no loose rivet can cause a variation in the angle, on which account glasses with rims are, perhaps, somewhat safer than the rimless, though the latter also may be solidly constructed and are less objectionable to most persons. The glasses should never be carelessly handled by the side pieces; they should be removed carefully and laid down clear of other objects, not jammed carelessly into a case. In fact, whenever it can be arranged it is better not to use a case. Again, frequent visits should be made to the optician; such a visit may not only abort an individual attack of migraine after twinkling scotoma has appeared, but may even relieve a headache well under way.

No one can straighten his own spectacles with the fingers and no one should attempt to do so, though perhaps with the proper forceps and with instruction and practice one may learn to correct a simple tilt. In a case of astigmatism it is out of the question that a pair of spectacles fitted months or years ago should do efficient work to-day without readjustment.

With regard to the question of *how to look through spectacles:* The patient should be warned that each time he looks from side to side or up or down he is looking through the wrong curve, and may thus increase, rather than lessen, his refractive error, though this may be obviated to some degree by using toric lenses. The patient should also be warned that efforts to see clearly objects at a distance by straining the eyes, with the spectacles on, only reproduces the trouble for which the glasses are prescribed. When a distant object cannot be easily made out by resting the eyes upon it without strain, the patient should learn to say to himself, "That object is beyond my range of vision." This is a variety of self-restraint particularly hard to practice at the theatre or ball game.

Even when all these precautions are carefully stated by the neurologist and by the oculist, there still remains an element of uncertainty in their accomplishment, but until the attempt has been made to obviate at least these every-day chances of non-success, the assertion that correction of refraction has been given a thorough trial is hardly justifiable.

The following note will be of interest in this connection:

Dr. Walton:

Dear Sir, — I thought you might like to know how much better I have been since I have become accustomed to Dr. ——'s glasses. I have scarcely had a headache and am feeling in every way much better. Am trying to follow all the good advice you gave me that day, looking directly through the center of my glasses, etc. Thanking you for sending me to Dr. ——, I am,

Sincerely yours, ——

This patient, notwithstanding previous attempts at relief by ocular and other treatment, *had suffered for a long period from weekly attacks of migraine during which vomiting occurred sometimes as many as six times a day.*

Even assuming the patient to be mistaken in ascribing any part of the benefit to these details, and that the success was due to a fortunate change or prescription on the part of the final oculist consulted, the incident will serve to illustrate the importance of persistence in this line of investigatiion.

The following is cited as a striking instance not only of general cerebral disturbance resulting from eyestrain, but also of a definite reflex symptom probably similarly produced, and apparently relieved by attention to the details I have indicated.

Case. A stout, athletic man of forty-one has been engaged continuously for some time without vacation upon important head work and has noticed of late a gradually increasing disagreeable sensation in the head falling short of headache. During the past month there has appeared and increased a thick feeling about the chin and mouth and in the left side of the tongue. He formerly smoked a number of cigars a day; of late, two a day. There is no numbness of the hands and feet, no central scotoma, no cardiac irregularity; in other words, no definite sign of nicotine poisoning. Physical examination shows a normal heart, normal urine, normal reflexes and perfect physical condition. The vision in the right eye is normal, in the left 20—30 without correction. He was advised to discontinue tobacco entirely, and to take a vacation after having obtained glasses. These were prescribed by Dr. Proctor.

One month later, after returning from his vacation, he found himself still unable to work for more than an hour or two, after which it was impossible to think consecutively. He had been all right during his vacation, but now felt that it was impossible for him to go on with his work and seriously contemplated giving it up entirely. He had been wearing eyeglasses, and those only at his work. He was advised to replace the eyeglasses by spectacles and to wear them constantly. He reported later that he found himself able to work all day without trouble immediately upon putting on the spectacles. The thick feeling in the tongue and chin which had existed continuously for three months disappeared that day and has not reappeared. He is now continuing his work without trouble.

[2] Journ. Am. Med. Asso., April 22, 1905.

My only fear in such cases is that continued absence of headache and other symptoms may cause relapse in the care of the details these patients are now following with strict attention.

"Eternal vigilance is the price of safety."

It is probable that eyestrain headaches occurring in cases of optic neuritis may sometimes be mistaken for the headache of new growth, and I strongly suspect this is often true in the pseudotumor cases described by Nonne. This combination in a young man sent me by Dr. Harrower some time ago led me strongly to suspect new growth, though no other signs were present. On seeing him recently, however, I found that the headaches had materially lessened since he had lost his sight to such a degree that he no longer attempted to read. No further symptoms of cerebral disease had appeared. Noting that he still frowned I questioned him more closely and it appeared that the headaches were always frontal and occipital, that they never kept him awake at night though they were extremely severe at times, and sometimes were accompanied by vomiting, and that the patient himself noticed they were worse after the use of the eyes. Dr. Mansur, who also saw the case, called my attention to a very wide excursion of the pupils on accommodative effort, in marked contrast to the slight reaction to light, showing that he is still capable of extreme accommodative effort. It seems probable, then, that these were mainly, if not purely, eyestrain headaches.

Let us now view the other side of the shield.

I have already referred to the fact that a predisposing constitutional tendency may underlie migraine, even though eyestrain may be the exciting cause of the attacks. There is another form of headache for which glasses are not infrequently prescribed, in which the constitutional tendency so dominates the picture that even if eyestrain exists, it is of minor importance in the etiology, and its treatment is almost uniformly unavailing. I refer to the so-called *constitutional headache*. This headache is mentioned by writers on degeneration, but its adequate description I do not find in the literature.

The headache which I have come to recognize under this title is quite different from migraine. This variety of headache is likely to appear, not in childhood, but during adolescence. The patient is perhaps a young woman, who has passed through a comparatively robust and uneventful girlhood, but who lacks the vitality to carry her into womanhood on the same plane of health, and to enable her to assume with comfort and ease the duties and responsibilities of adult life. Such a patient may take up the burden, notwithstanding the handicap, or she may fall at this time into the invalid, or semi-invalid, not to say hyponchondriacal, habit. Among other symptoms such a patient gives prominence to constant headache, described as excruciating, frightful, in short, as torture. The pain is apt to be vaguely localized, perhaps affecting the whole head, perhaps vertical, rarely definitely referred, like the results of eyestrain, to the forehead, temples and occiput, and rarely migranoid in character.

Although it is stated that the headache is present during the visit, the patient may be smiling and pleasant, and show no more exhaustion after a long examination than the examiner, perhaps not so much. Imagination, that expression so obnoxious to neurotics, is the term often applied to this variety of headache, but these patients probably really have a certain discomfort through the acute realization of the sensation physiologically accompanying mental effort, a phenomenon unnoted by the normal individual, whose attention is directed elsewhere, but not only realized, but even interpreted as agonizing pain by the individual whose ruling obsession is the desire to be free from all except agreeable sensations. This headache is perhaps analogous to that of brain fag, but out of proportion to the fag.

Such a patient will, on the chances, be found to have astigmatism, but the most painstaking correction is likely to prove unavailing. It is not unusual, in fact, for such patients to pass through the hands also of the rhinologist and the gynecologist for undoubted nasal and uterine defects, but without avail. Such cases have doubtless done much to further the skepticism regarding reflex symptoms from these various organs as well as from eyestrain.

It is desirable that such cases should be recognized at the outset, and that the fact should be patent that in these cases the astigmatism, the deviated septum, and the infantile or congenitally misplaced uterus are simply corroborative signs of constitutional defect, and that the morbid nervous symptoms are part and parcel of this constitutional tendency rather than reflex phenomena.

Nervous irritability appears to be sometimes lessened by the adjustment of glasses, but here again care should be taken to eliminate the irritability of the ideo-obsessive. Before promising relief from glasses the oculist as well as the neurologist should learn to note the fussiness of the constitutionally psycho-neurotic, shown, for example, by persistent change in the position of the chair placed by the examiner, by complaints of the temperature of the room, the call for a fan, or glass of water, the shading of a light, the closing or opening of a window; the nail biting, the grunting, sniffing, blinking, the vocalized cough and other compulsive manifestations of the ideo-obsessive, even amounting sometimes to *tic convulsif*, or more properly *tic obsessif*, in which the most bizarre movements are made, apparently to complete a mental picture. In this connection should be mentioned also the antagonistic attitude, the resentment at the various steps in the examination, and the reproaches because other steps are not taken, which the patient regards as important, particularly an inspection of the back, to which so many anomalous sensations are referred.

If spectacles are prescribed these patients can rarely accustom themselves to the reflection from the glass, the sight of the rim or the feeling of the bow over the ear, phenomena unnoted by

the average individual, but giving rise to a degree of discomfort in the ideo-obsessive, which gives a clew to the nature of the constitutional headache itself.

If the visit is preceded by a letter containing a statement of the symptoms, is accompanied by frequent reference to notes, and is followed by letters setting forth with great particularity points not completely elucidated during the visit, the oculist as well as the neurologist should recognize the confirmed hypochondriac, for whom other than mental treatment is sure to prove unavailing, and mental treatment itself only useful in very exceptional, and comparatively early, cases.

A word regarding *epilepsy* and *chorea*. It is doubtless true that a large percentage of refractive error will be found in these disorders. It is also true that an overloaded stomach sometimes precedes an epileptic attack, but there seems as little hope of curing these disorders by applying glasses as by regulating the digestion. This should not, of course, deter us from removing all such sources of irritation, a procedure which may materially benefit chorea, but must keep our expectations within legitimate bounds. If the overuse of other muscles than those of accommodation could furnish an analogue for the epileptic attacks there would be theoretical ground for the belief that eyestrain could produce epilepsy, even though refractive treatment in practice proved unavailing. In point of fact, however, while we have in the pain and cramp in other occupation neuroses, the analogue of the accommodative spasm and headache, there is nothing to suggest the generalized spasm and unconsciousness of epilepsy.

The following cases are cited as instances in which glasses have been vainly prescribed for symptoms supposed to be reflex, but really due to constitutional tendencies.

Case. A business man, insurance agent, thirty-one years old, was sent for consultation by Dr. Proctor. Has had headaches for ten years, largely in the occipital region, also extending to this region from the eyes. There is no blur with the headaches, and no nausea or vomiting. They may come any time in the day. It bores him to talk; he is sleepless. He has bad dreams and worries at night with regard to business. The top of his head is sore at times. There is a scraping in the head at times like a broken violin string. Six months ago, he drank a strong cup of coffee which prevented his sleeping and which he thinks has upset him ever since. As a boy he was always shy and sensitive; would cross the street to avoid people when not feeling well. He is very conscientious and his wife states that he takes his work very hard, worries excessively on making mistakes, and carries his business to bed with him. His sister is highstrung, nervous and irritable, as was the entire family on the father's side. He has been treated hopefully by various oculists who have recommended prisms and lenses, both cylindrical and spherical, without effect. One year ago he was treated by a rhinologist for three or four months on account of contact between turbinate bone and the septum; no result followed. He was then treated on the theory that uric acid caused the headache, but this treatment gave no benefit. His family doctor then diagnosticated nervous exhaustion. My diagnosis was constitutional headache.

Case. A man of forty-four has had for a year occipital and vertical headache, practically constant during the day, but always disappearing at night. Heat or worry increases the pain and mental distraction causes it to disappear. It sometimes feels as if the top of the head would lift off. Has had three attacks during the year of abdominal tenderness and inflation lasting a day only; during these attacks the headaches disappeared. The third of these attacks occurred during worry on account of the illness of a child.

He has a brother and sister, extremely nervous, tremulous and sensitive. The sister has had an attack of nervous prostration, before which she was hysterical. A paternal uncle is in an insane hospital. His father was a very "set" man, his father's brother still more so.

Physical examination shows a well built, rugged man, who frequently clears his throat in the automatic manner peculiar to the obsessive. Abdominal examination is negative. His refractive error is apparently perfectly corrected by glasses.

Case. A professional man has given up his work on account of trouble with the eyes. This trouble was of gradual onset commencing with difficulty in opening the lids. This trouble persists, but the eyes will open perfectly when the mind is engaged or when the mouth is open. Sometimes when the eyes are open the breath must be held. There is a neurotic family history. The patient was always sensitive and little things would worry him. He has a dread of being in a crowd, and has been subject to urticaria for several years, large welts appearing upon the skin whenever he is chilled.

The eyes are closed most of the time, being occasionally held open for a second or two. Occasionally rapid winking appears, also twitching movements of the mouth. The patient repeatedly makes an expiratory noise in the throat of which he states he is unaware.

Various oculists have been consulted and, on the theory that the symptoms were reflex, glasses, both cylindrical and prismatic, have been prescribed, correcting the refractive error, but without affording relief. The middle turbinate on one side has been also removed and the middle and inferior turbinates on the other, without result, except that during the cocainization of the nasal cavity the trouble with the lids temporarily disappeared.

A word upon the *biographical study of eyestrain*. A careful study of the lives of prominent men would indicate that they were hampered by eyestrain (Gould), but it is a question if enthusiasts in other branches of medicine might not find evidence that their mental and physical peculiarities were due to, and might have been cured by, treatment of other pathological states than eyestrain. Might not the dentist attribute De Quincey's indigestion to his defective teeth, or the diatetic enthusiast find an excess of uric acid the cause of Carlyle's unfortunate disposition? However this may be, the history of such cases reveals signs, physical, mental, or both, of constitutional peculiarity. Carlyle in his boyhood was shy, proud, pugnacious, with strong affections and with equally violent antipathies. In later life he made war upon the neighbors' poultry and had constructed for his labors a room proof against sound. De Quincey was a man of

diminutive stature, given to day dreaming before he became addicted to the habit the inability to resist which may quite as plausibly be attributed to constitutional weakness as to the discomfort caused by eyestrain.

It is, perhaps, partly through lack, not of knowledge, but of discriminating attention to the distinctions I have reviewed that so much discouragement exists among neurologists regarding the relief of nervous symptoms by recourse to glasses. It is also possible that extreme claims have aroused the negativism of the practitioner and thus prevented systematic effort. If I have induced anyone present to renew an abandoned effort to help some sufferer from migraine by glasses, the main object of this paper has been attained.

CONCLUSIONS.

(1) Among individuals totally blind since infancy, 66% were free from tendency to headache, as contrasted with 31% of those having sight, and 29% of those with partial or with acquired blindness.

(2) If these figures should prove constant the inference would seem justifiable that half the headaches in health are due to eyestrain.

(3) The headache, when present among those totally blind since infancy, partook sufficiently often of the migranoid character to preclude the supposition that *all* migraine is due to eyestrain.

(4) The results of this study would indicate that while migraine and migranoid headaches have a constitutional basis, and while other factors than eyestrain may act as exciting causes, still, eyestrain is one of the most, if not the most, important of these exciting causes, and steps for its relief are imperative.

(5) In no case has correction of refraction been given a thorough trial until (*a*) the glasses are properly centered, (*b*) their continued readjustment is practiced, (*c*) the patient looks as much as possible through their centers instead of from side to side, (*d*) efforts are avoided at straining the eyes to see distant objects with the glasses, (*e*) spectacles instead of eyeglasses are used, and (*f*) the use of spectacles is constant, not intermittent.

(6) The constitutional headache of the deviate is probably allied to the headache of "brain fag," but is out of all porportion to the sources of fag. Little can here be expected of spectacles.

(7) In the proportion in which obsessive tendencies and other signs of constitutional peculiarity accompany errors of refraction, efforts at the correction of refraction will prove unavailing for the relief of nervous symptoms.

THE PRESERVATION OF THE URINE.

BY J. BERGEN OGDEN, M.D., NEW YORK.

THE preservation of the urine is a subject with which every physician has to deal at some time, but one which is, unfortunately, neglected and sometimes considered of little importance. But it *is* essential that a urine be in a fairly fresh condition in order that a satisfactory examination be made, so that the use of a preservative is at times imperative.

It is often necessary to collect the twenty-four-hour quantity of urine and to have it in a fresh condition at the end of twenty-four or forty-eight hours, or even at the end of seventy-two hours. This becomes a difficult matter, particularly in warm weather. It is also often important that a sample of a single micturition or a sample of the mixed twenty-four hour urine be sent to the physician's office or to a clinical laboratory either by mail or express, requiring two or three days for transportation, and that the specimen arrive in a condition suitable for examination. The problems of what to use and how much should be used naturally arise.

It is, of course, essential that a preservative be used which will modify the composition of the urine as little as possible, and one which will not interfere with the chemical tests or the microscopic examination of the sediment. Unfortunately, most preservatives modify the urine to a slight degree, and some to a greater extent than others; these facts I hope to make clear in the consideration of the individual substances.

The length of time that a urine, which is free from preservatives, will remain suitable for a chemical and microscopical examination will depend upon (1) the temperature at which it is kept, (2) the degree of concentration, and (3) the presence or absence of pathological elements such as albumin and sugar.

It is well known that a urine will decompose much more rapidly at a temperature of 80° F. than at 60° F.[1] We also know that a urine with a low specific gravity (*e. g.* 1,010) will decompose much more rapidly than one with a specific gravity of 1,021, and a urine with a gravity of 1,030, but free from sugar, will remain fresh a much longer time than one with a gravity of 1,021. A specimen that contains more than a very slight trace of albumin will generally undergo rapid ammoniacal decomposition, or become so filled with bacteria that the sediment is unfit for examination. When 1% or more of sugar is present in a urine, ammoniacal decomposition rarely occurs; indeed, the reaction usually becomes more acid due to the formation of acids in the process of fermentation. As soon, however, as fermentation of the sugar begins, the progress of which depends largely upon the temperature, the sediment soon becomes unfit for examination because of the abundant development of sugar spores (*torula cerevisiæ*).

The subject-matter of this paper is based upon 140 experiments with various preservatives in urines of varying composition: (1) Those with a normal, a high, and a low specific gravity; (2) those with albumin and without albumin; (3) those with sugar and free from sugar; (4) those with a variety of casts and without casts; (5) those containing pus and blood; and (6) those

[1] All statements in this paper as to the use of preservatives apply to room temperature, — about 70° F.

containing crystalline elements. Each experiment was accompanied by a control of the same urine. The control and preserved specimens were allowed to stand in stoppered bottles at room temperature, which averaged about 70° F., until they had either undergone ammoniacal decomposition or become so changed by the presence of bacteria or deposits that chemical tests could not be satisfactorily applied or the elements in the sediment detected.

It is my purpose to call attention to some of the preservatives which may be used with advantage, and to point out a few of the substances which ought to be avoided but which are frequently used.

BORACIC ACID.

Boracic (boric) acid is undoubtedly the best and the safest urinary preservative that we possess. It modifies the urine the least of any of the substances in common use. It does not interfere with any of the ordinary tests used in the analysis of the urine, and does not interfere with the microscopic examination of the sediment.

By experiment I have found that 5 gr. of boracic acid dissolved in 4 oz. of urine will preserve it from three days to nearly three weeks, depending, of course, upon the character of the urine and the temperature at which it is kept. With this preservative an albuminous urine keeps about as well as one that is in all respects normal. A urine which has been preserved in this way, but which contains sugar, will not as a rule keep longer than three days without losing a part of the sugar by fermentation and depositing an abundance of spores and crystals of uric acid.

A point which should be borne in mind in the use of boracic acid is that when 5 gr. are added to 4 oz. of urine the specific gravity will be found to be about two points higher than in the original specimen, and when 3 gr. are used in 4 oz. of urine, the reading is one point higher. This, however, does not constitute a serious objection, for it is a simple matter to deduct one or two points from the reading providing the exact quantity of preservative that has been used is known.

This preservative can be used in either the crystalline or the powdered form; tablets are also often found a convenience. The tablets of most manufacturers are free from objections, although some of the tablets are prepared with starch; if the amount of starch is small they can be safely used, and any starch granules found in the sediment disregarded. Of course, tablets containing a large proportion of starch or those containing milk sugar should be avoided, and unfortunately some of each are on the market.

It is my habit to advise the use of boracic acid if a specimen of urine is to be more than forty-eight hours in reaching its destination after it was voided, and to use it in the proportion of 5 gr. to every 4 oz. of urine. If the twenty-four-hour quantity of urine is to be collected, 15 gr. of boracic acid should be placed in the bottle or vessel when the collection is started; this amount of acid will gradually dissolve as additions are made, and will usually preserve the urine for at least twenty-four hours after the total quantity has been collected. A larger amount of acid can be safely used, but it is not necessary in the majority of instances.

The use of boracic acid is especially valuable to insurance companies which frequently have specimens sent from distant points to the home office for examination.

FORMALDEHYDE.[2]

The value of formaldehyde as a preservative is well known, but as a urinary preservative it has its limitations, particularly if not used in proper quantity. The chief danger is in using too much. There seems to be a feeling, especially among laymen, that if one drop will preserve a specimen, two, five, or ten drops will be far more efficacious. When more than one drop is added to 4 oz. of urine, some specimens, especially those with a high specific gravity and a high percentage of urea, deposit an abundant precipitate which is supposed to consist of a compound of the formaldehyde with urea. This precipitate renders the sediment unfit for microscopic examination.

Perhaps the most objectionable feature of this preservative is its reducing action on Fehling's solution. This happens when several drops of the formaldehyde solution have been added to a small (4 oz.) specimen of urine. The copper tests for sugar cannot, therefore, be used, but other tests must be utilized. Formaldehyde reacts in a peculiar manner with phenylhydrazine, producing an abundant non-crystalline deposit which, of course, is readily distinguished from phenylglucosazone by the fact that it is non-crystalline.

Kenney[3] has found that when four or more drops of the 40% solution of formaldehyde are added to an ounce of urine, a distinct reaction for albumin — a reaction resembling that for albumin — is obtained by Heller's nitric acid test. If, therefore, too much formaldehyde has been used for preservation, this test for albumin becomes unreliable.

A solution of formaldehyde can, however, be safely used in the proportion of one drop (and no more) to 4 oz. of urine. This amount will preserve that quantity of urine for days, and sometimes for weeks and months; for larger samples of urine and for twenty-four-hour quantities, I would advise the use of one drop to each pint of urine, and in most instances the results will be very satisfactory.

Urotropin has been used to some extent to preserve specimens of urine with the idea that available formaldehyde was obtained when the tablets went into solution. Such a phenomenon, however, does not occur. I have satisfactorily demonstrated that urotropin has absolutely no preserving action on the urine. So far as I know no tablet is made which contains available formaldehyde when dissolved in either water or urine.

[2] This term refers to a 40% solution of the gas which is in common use.

[3] New York and Philadelphia Medical Journal, Feb. 27, 1904.

SALICYLIC ACID.

Salicylic acid is a very good urinary preservative in the proportion of 2 gr. to 4 oz. of urine. It, however, has objections which at times become serious, especially when the acid has been used in larger proportions than those mentioned. The chief objection to its use is the fact that it frequently throws down a heavy deposit of uric acid in the form of fine needles which so obscure the sediment as to render a satisfactory examination impossible. Unfortunately there is no way of dissolving these uric acid crystals, leaving the sediment intact so that it can be examined microscopically. There is another objection to the use of salicylic acid, *i. e.*, the fact that it reacts with ferric chloride in much the same manner as aceto-acetic acid. This, however, is a less serious matter, for it is not difficult to distinguish between the two substances since aceto-acetic acid is volatile, and can be driven off from the urine by boiling, while salicylic acid cannot be expelled by heat.

Salicylic acid sometimes throws down a very fine amorphous precipitate from urines which have been preserved by it. This precipitate, the nature of which we do not know, usually appears on the second or third day after preservation, and is apparently independent of the degree of concentration. It is as apt to occur in a perfectly normal urine as in one containing albumin or other pathological elements. Its presence renders the sediment unfit for examination since most or all of the morphological elements are obscured by the deposit.

I do not encourage the use of salicylic acid for the reasons given, although it may be used in the amounts named, providing other more desirable substances, such as boracic acid and formaldehyde, are not at hand. Salicylic acid is, however, always used with considerable risk.

BENZOIC ACID.

Benzoic acid in the proportion of 1 gr. to 4 oz. of urine preserves the urine fully as well as salicylic acid. It is open to some of the objections as the latter in that it is apt to throw down a deposit of uric acid, as very fine needles, and sometimes an amorphous deposit — not amorphous urates — which renders the sediment unsuitable for microscopic examination.

The same can be said of benzoic acid as of salicylic acid, *i. e.*, that it is effectual as a preservative but used with some risk of so modifying the urine that it cannot be satisfactorily examined.

CORROSIVE SUBLIMATE.

Theoretically, corrosive sublimate should act as a good urinary preservative. It certainly does prevent the growth of bacteria and the development of ferments when used in the proportion of 1 gr. to 4 oz. of urine. But in this and in even greater dilutions it is apt to precipitate some of the albumin in an albuminous urine, and, therefore interfere with the examination of the sediment.

When corrosive sublimate is used, even in large dilutions, a dark deposit almost always goes down with the gravity sediment in normal as well as in pathological urine. The dark specks or granules do not usually appear until a number of hours after the mercury has been added, but a sediment containing them becomes difficult to examine microscopically because they adhere closely to the organized elements — casts and epithelial cells. Corrosive sublimate should, therefore, not be used as a urinary preservative.

CHLOROFORM.

Chloroform is quite frequently used to preserve the urine, but it is in many instances unreliable. If a urine has a high specific gravity the preserving action is greater than when the specific gravity is 1,021 or less.

An objection to the use of chloroform is the fact that one drop in four ounces of urine does not dissolve. It is, therefore, apt to interfere with the examination of the sediment by being drawn up into the pipette and then transferred to the slide.

A still greater objection to using chloroform is that it reduces alkaline solutions of copper. With Fehling's solution a deposit of suboxide of copper is usually obtained which renders this test for sugar useless. The distinction between sugar and chloroform can, of course, be made by employing the phenylhydrazine, the fermentation or other tests for sugar which do not depend on the reduction of copper. Chloroform should not be used as a urinary preservative.

CHLORAL.

Chloral has comparatively little preserving action on the urine. It is soluble in the urine and is generally used in the proportion of 5 gr. to 4 oz. of urine. It is open to the same objection as chloroform in that it has a decided reducing action on an alkaline solution of copper, thus rendering Fehling's test for sugar unreliable. It is, therefore, necessary to use other sugar tests, and it is my custom to resort to the phenylhydrazine test under these circumstances. It is desirable to avoid the use of chloral for this purpose.

CAMPHOR.

Camphor is objectionable on the same ground as chloroform and chloral. It reduces Fehling's solution and appears to have only very slight, if any, preserving action. When used in the proportion of 1 gr. to 4 oz. of urine, very little of it dissolves, and in a number of my experiments the control urines remained fresh fully as long as those to which camphor had been added. The use of camphor for this purpose should, therefore, be abandoned.

THYMOL.

Thymol is used to some extent to prevent the growth of bacteria. In my experience the preserving action is exceedingly slight and I am satisfied that it is not suitable as a preservative, particularly when it is necessary to keep the urine

two or three days. The usual method of using is to add a small crystal to the urine to be preserved. It is only slightly soluble in the urine, and in my experiments did not prevent the growth of bacteria longer than twenty-four hours. So far as I know thymol does not interfere with any of the tests usually applied to the urine. It, however, cannot be recommended because of its efficiency as a preservative.

Carbolic acid, chromic acid, ether, hydronaphthol, and a number of other substances have been recommended and used for the purpose of preserving the urine. All of them are either undesirable because they interfere with chemical tests and the microscopical examination of the sediment or are ineffectual as preservatives.

CONCLUSIONS.

(1) Boracic acid is the most practical urinary preservative that we possess when used in the proportion of 5 gr. to 4 oz. (or 2½ gr. to 2 oz.) of urine.

(2) Formaldehyde solution should be used only by the physician or a responsible person It should be remembered that one drop of the solution will preserve a pint of urine for about a week, and that one drop can be used in 4 oz. of urine without harm.

(3) Other substances than boracic acid and formaldehyde should not be used.

(4) The name of the preservative and the quantity that has been used should always accompany the specimen to be examined.

IMPETIGO CENTAGIOSA: CUTANEOUS ABSCESSES CAUSED BY PYOGENIC MICRO-ORGANISMS.*

BY J. T. BOWEN, M.D., BOSTON,
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A VERY common affection, which the advance in bacteriology of the last twenty years has explained quite thoroughly, is that known as *impetigo contagiosa*, — *impetigo* of the French. Passing over the various affections that have been formerly described under the name of varieties of impetigo, the affection of which I want to speak briefly to-night is the impetigo contagiosa of Tilbury-Fox, an exceedingly common affection more often seen in children and in the uncleanly, but of sufficiently common occurrence in people of the best condition. The importance of its recognition is very great from the point of view of treatment, inasmuch as the principles that apply to an ordinary eczema do not apply here. It has been definitely shown that the affection is characterized by the formation of a superficial abscess between the lower horny layers and the rete, and that the pyogenic micro-organisms are the causative factor.

It is a contagious, auto-inoculable affection, at times epidemic, and makes its appearance first in the form of small vesicles which quickly become pustular, and are transformed into superficial, yellowish crusts, which have an appearance as if "stuck on."

The affection is far more common in children, and it has been the fashion to assert that there is usually a scrofular or lymphatic tendency in those affected. This hypothesis has not been able to withstand the scrutiny of close observation.

Uncleanliness and lack of care are unquestionably important factors, as offering an entrance to the pathogenic microbes. Animal parasites, as pediculi, often enter into the etiology, as the scratching caused by their presence is sufficient to cause excoriation of the skin, and in this way offer a gate of ingress. An impetigo is very frequently grafted on scabies, the acarus and the scratching that it provokes causing the break in the continuity of the skin which opens the door for the pyogenic micro-organisms.

In the infant, and to a less extent in the adult, the affection is very apt to be grouped about the natural orifices of the face — ears, mouth, nose, etc. Sometimes it is seen in large confluent patches; at other times in smaller foci, or in a combination of the two. The eye is often affected with a phlyctenular keratitis, causing great photophobia. Lymphatic glands in the submaxillary and cervical region are most frequently tumified.

The affection being contagious and auto-inoculable, the lesions are very apt to appear on the hands, as well as the face, especially about the nail fold. The affection may appear on any part of the body. Occasionally impetigo contagiosa is met with as circinate or annular forms, and these forms are quite frequently seen in the adult. Epidemics have been observed in this vicinity, where a large number of cases, all of which presented this annular type, have occurred in workmen in the same factory, and these have been alluded to by Dr. J. C. White. This form of annular and circinate impetigo contagiosa is not spoken of especially in the textbooks; certainly it is not emphasizd so much as its comparative frequency in this community would demand. By the inexperienced it is often taken for ringworm.

Formerly, many of these cases of impetigo contagiosa were confounded with eczema, and received the name of impetiginous eczema. Now that the affection has been studied from a bacteriological point of view, it is known that a complication of impetigo contagiosa is a frequent occurrence. In these cases an eczema may have been produced by a long continued impetigo contagiosa, or an eczema may have become infected with the pyogenic micro-organisms. In these cases whether we speak of an impetiginous eczema or of an impetigo with eczema makes little difference. The exact rôle played by the different species of pyogenic microbes has not been fully determined. The staphylococci are usually held responsible for most of the manifestations. Saboraud of Paris, however, considers that this form is due to the streptococcus, which he finds exists alone in the earliest lesions when an especial method of culture is used.

*Read at a meeting of the Boston Society for Medical Improvement, March 20, 1905.

Epidemics of impetigo contagiosa have for a long time been described and are not infrequent in this locality. Instances that have come under my own observations are those of men working together in the same shop, as many as eight or ten of whom have been seen affected with the same type of affection. A large number of cases were observed last winter in one of the popular private schools for boys in this city. It is not infrequent among college boys who exercise in the same gymnasium, or in other ways come into intimate contact with one another. The exact mode of contagion is in most cases difficult to determine; the opportunity for infection, however, is almost always apparent.

The treatment of this affection is simple, and usually quickly successful. Certain principles should be borne in mind: that we have here an abscess in the upper layers of the epidermis, and that there is no inflammation affecting the lower layers of the skin, as in a case of eczema. Energetic treatment may, therefore, be resorted to. Soap and water, so highly injurious to the sensitive, inflammatory eczema of child or adult, should be freely used. Removal of the crusts by this means twice a day, followed by the application simply of a 10% ointment of boric acid in lanoline or lard is, in a large majority of cases, sufficient for a cure. Much stress is laid upon the thorough removal of the crusts with soap and water. Certain cases, especially those of the adult type, will require a more energetic treatment, and an ointment of sulphur, or, where the affection is not extensive, the ammoniated chloride of mercury, may be used with effect. Very strong parasiticides should be avoided as a rule as unnecessary and as tending to produce a dermatitis. In the cases which are complicated by an eczema, the treatment should be more carefully watched, and vigorous methods resorted to with caution.

The great prevalence of these parasitic skin diseases is further illustrated by the records of the Massachusetts General Hospital for the year 1904. Out of about 4,000 new cases treated, 411 or 11% were scabies. The largest number of cases, as would be expected, were registered as eczema. Next to eczema came *scabies* and third on the list in frequency, *impetigo contagiosa*.

SCABIES.*

BY J. S. HOWE, M.D., BOSTON.

SCABIES, or as it is more commonly called, "The Itch," is a disease so common in our community at the present time that its recognition and proper treatment should be thoroughly understood by every practitioner of medicine. During the past year in the treatment of 2,200 cases of diseases of the skin in both hospital and private practice, I have been called upon to treat 345 cases of scabies and these figures will give you, I think, a fair idea of the prevalence of this disease. In typical cases of this affection the diagnosis of the disease is the most simple problem that confronts one in the domain of cutaneous medicine, and as all, or nearly all, medical men essay the treatment of skin diseases of all and every kind, it seems as though they should at least recognize scabies both on account of its prevalence and the very characteristic features which it presents. In spite of all this, I have seen absolutely unmistakeable cases of scabies treated as syphilis, eczema, urticaria, so-called chronic poisoning from ivy and dogwood, and even as disorders of the liver and kidneys. Equally ridiculous mistakes I have seen made in the treatment of the disease, having seen a universal dermatitis of a most severe type caused by chrysarobin used for the cure of scabies, while only last Saturday I saw a similar condition of the skin caused by the use of mercurial ointment. Such mistakes as I have mentioned in the diagnosis and treatment of this disease may cause a smile of incredulity to appear on the faces of most of my hearers, but I assure you that many of these mistakes were made by perfectly reputable medical men. Scabies as you doubtless know is caused by an animal parasite known as the acarus scabeii, and in order to fully understand the lesions which appear upon the cutaneous integument as a result of infection from this parasite let me tell you briefly something of its life history. The female of this parasite alone burrows in the skin depositing in the burrow her ova and feces. The ova hatch in about ten days, when the young find their way to the surface of the skin when the females are impregnated and at once proceed to burrow in the skin. The life of the females extend over a period of from six weeks to two months and each one lays about fifty eggs. The presence of this parasite in the skin causes primarily the appearance of vesicles, papules, pustules and itching, and secondarily, from scratching, excoriations, pus infection and areas of dermatitis and eczema. The sites most affected by these varying lesions are the areas between the fingers, the angles between the thumb and first finger, the fronts of the wrists, the flexures of the elbows, the folds of the axillæ the cleft of the nates, the nipples and beneath the breasts in women, the region about the umbilicus, the genitals in both sexes, the inner aspects of the thighs and the popliteal spaces. In uncleanly persons when the disease has existed for a long time there is scarcely a portion of the integument excepting the face which is not fairly well covered with the varying manifestations of this disease. The majority of the papules are pinhead in size, excoriated by scratching and capped with a crust of dried blood. The characteristic location of the various lesions, the presence of burrows, the intense pruritus worst at night and the existence of the disease in other members of the family or some bedfellow or acquaintance makes the diagnosis an easy one in these well-marked cases.

It is however, in the cleanly and well-to-do that atypical cases occur, whose recognition is

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at times by no means easy. In the lower walks of life, those whose occupation causes them to wash their hands frequently often present a well-developed case of scabies of the body with no or only a very few lesions of the disease between the fingers or on the hands or wrists. In the upper classes where daily bathing and personal cleanliness is a routine, cases of this disease are most often unrecognized. This is due mainly to two causes; firstly, its presence is unsuspected and, secondly, in a majority of cases the lesions are scanty in number. In these cases one frequently finds not more than from a dozen to twenty lesions, but such lesions point to the disease under consideration in several ways. They are nearly always individual, discrete, papules or vesicles or both combined and pinhead in size. Generally one or more of these papules are found about the elbows or on the arms and perhaps a few on the trunk. There is always considerable pruritus worse at night, and some of the papules or vesicles are usually excoriated by scratching.

If burrows can be found in these cases the diagnosis is easy, but as a rule none can be found. In these cases an urticaria sometimes accompanies the other lesions, and the entire process may be mistaken for an urticaria. This mistake can be avoided, however, if one remembers that the lesions of urticaria are wheals and are fugitive in character, appearing and disappearing with great rapidity, while the lesions of scabies consist of papules and vesicles which have a more or less permanent duration. In the diagnosis of both the well-marked and these atypical cases of scabies, itching is a prominent symptom and the medical man who finds a patient with any disease of the skin which shows papules and vesicles accompanied by pruritis should always bear in mind, no matter what station in life his patient occupies, that he may have before him a case of scabies. As to the treatment of the disease, it is fortunately an easy and simple one and a cure is quickly effected. The patient should on retiring take a hot bath and scrub himself thoroughly with soap and water. After the body is dried, an ointment, consisting of napthol, B ℥j; sulph. flour, ʒ ij; balsam Peru; vaseline, ää ℥i. should be rubbed thoroughly into all the affected parts. This process omitting the bath is to be followed on the two succeeding nights. If this is thoroughly done the patient should be cured. In infants and persons with delicate skins prone to dermatitis and eczema balsam of Peru is very effective and less irritating than the ointment before recommended. I must also call your attention to the over-treatment of these cases. Irritability and more or less marked pruritus nearly always follow the treatment for scabies for a few days. In their ignorance of the fact, both the patient and the physician often continue the treatment for scabies after a real cure has been effected. This simply adds fuel to the fire, as it were, and large areas of acute dermatitis and even eczema take the place of the original disease. For this reason, after three days of treatment for scabies I advise the use of mild, soothing lotions or ointments. If at the end of a week pruritus continues and increases, the original infection has probably not been cured and another three nights of treatment for scabies may be necessary. The clothing of those affected should be boiled or baked and every member of a family with the the disease must be cured or the trouble may keep on indefinitely. When the laity have come in many instances to recognize this disease, does it not seem a sad commentary on our profession that so many of our members fail to recognize it, and having recognized it fail to treat it properly?

OCCUPATIONS OF PATIENTS WITH SCABIES.

After the reading of Dr. Howe's paper, Dr. George F. Harding of the Boston City Hospital, stated that with an idea of finding some cause for the increase of scabies in private practice, about a year ago he looked up the occupations of some two hundred persons afflicted with the disease, seen chiefly at the hospital, and found the following sixty odd cases which seemed to him significant: Three barbers, working in a first-class establishment in the city; 4 shampooers who attended to ladies' hair; 2 manicure women; 1 masseur in a Turkish bath; 1 valet who had been in six families since he had the disease; 14 shop girls, 2 of whom did up candy in a well-known confectioner's, and 2 who fitted gloves in a department store; 2 cashiers in shops; 12 domestics in private families; 6 club servants; 2 Pullman porters; 4 car conductors; 10 commercial travelers.

VEGETABLE PARASITES OF THE SKIN AND MODERN METHODS OF CULTURE.*

BY CHARLES J. WHITE, M.D., BOSTON,
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In the few moments which I can claim this evening it will be possible to give but the merest outline of our present knowledge of the group of dermatophytes which produce the diseases we know by the clinical names, erythrasma, pityriasis versicolor, favus and ringworm.

The disease erythrasma must detain us but a moment, for, as you well know, this affection, which appears as a finely scaling, brown discoloration, usually on the scrotum and the contiguous portion of the thighs, is practically never observed here. The organism which produces this condition was isolated in 1859 by Burkhardt and given the name microsporon minutissimum. The mycology of the plant has never been properly studied, for no suitable artificial medium has ever been produced. Its exact botanical position is, therefore, uncertain, and our knowledge of the organism is limited to what can be gleaned from a microscopical examination of the scales scraped from a patient's skin. In short, we know that the plant grows in great abundance in the affected epidermic scales; that it appears as isolated or grouped, usually curved mycelial

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filaments, 3 μ in width, and 5 to 15μ in length; that it stains readily with Gram and all other aniline dyes, and that in its minuteness it closely resembles the streptothrix of Madura foot and of actinomycosis.

Pityriasis or tinea versicolor, is the disease which consists of minute, coherent, slightly greasy scales, varying in tint from pink to red, café au lait to dark brown, appearing at first as small circumfollicular lesions, most commonly on the chest and upper back, rarely appearing on unclothed parts, and tending to spread peripherally, and to join neighboring infected points until large areas of the body are covered. This disease is due to a plant first described by Eichstedt in 1846, and called by him microsporon furfur.

As in the case of the causal agent of erythrasma, we must plead considerable ignorance of the mycology of this plant, because no quite congenial, artificial soil has been discovered. Partial successes have been gained by Kothliar, who devised an epidermin agar, and by Gastou and by Matzenauer, who used a combination of agar and macerated and compressed placenta. Microscopical study of the organism and inoculation experiments upon animals and man, however, have been attended by success.

Under the microscope, the plant appears in great abundance, and a double picture is presented, one which makes the differential diagnosis between pityriasis versicolor and ringworm a comparatively simple one. This characteristic appearance consists of the simultaneous presence of spores and mycelia in definite relations to each other. The spores appear in groups of twenty to thirty, and individually are round or oval unless altered by mutual compression. They have a refrangent central portion and faint double surrounding ring. Even in the same group they vary from 2 to 5 μ in diameter. They never show any connection with the mycelia which surround them, and probably no one has ever seen them evince any true forms of reproduction. The mycelial tubes are usually about 3 mm. in diameter, are short, and as a rule curved or bent, and present no constant relation to one another. They contain a granular center and a transparent homogeneous envelope. Between them appear the masses of spores which have just been described.

The ringworms. — The first real knowledge of the botanical species causing this group of skin diseases dates back to 1841, when Grüby discovered the small-spored plant which is now known as the microsporon andouini. In 1891–92 the subject was revived by Neebe and Furthmann, who brought to light five new species, now known as the large spore variety, or the true trichophytons. In the following year, 1892, Sabouraud began his epoch-making investigations, which have increased our knowledge greatly and have induced many other workers in England, Germany, Italy and America to study the ringworm flora of their respective countries. The results of these numerous investigations have shown many variations from Sabouraud's teachings, but in the main, I think, are due more to international differences in the plants themselves and to discrepancies of technique than to individual errors in Sabouraud's work.

To study the disease ringworm we can pursue four different methods, the clinical, the microscopical, the cultural and the mycological.

The clinical method. — In practice we recognize three varieties on the scalp, two in the beard, and, to all intents and purposes, one on the non-hairy parts of the skin.

Ringworm of the scalp in Boston is usually due to the microsporon andouini, but I shall leave its description for the moment and consider it later in its proper place. There are two other forms, however, which come to our notice here, the dry alopecic type, and the follicular, pustular variety. The former type is usually observed in children, and consists of a central bald area, out of which extend large bays, which produce a very irregularly shaped area of alopecia. The skin is often reddened, but scales are not present in abundance, and broken-off stumps of hairs are for the most part absent. There is one other noteworthy characteristic, the frequent persistence of islands of apparently healthy long hairs rising out of the surrounding bald area just described.

The second, or pustular variety, consists of a round or oval mass of follicular pustules, which soon cause the fall of the invaded hairs, and produce a highly reddened, boggy patch often raised high above the surrounding healthy skin. These changes take place with great rapidity, and produce the conglomerate lesion known as kerion Celsi.

In the beard we may have the same lesion repeated, and as a second variety we have observed a rarer type where there is a diffuse scaling leading to no marked degree of inflammation, but producing an irregular condition of broken-off stumps and alopecia.

On the non-hairy parts of the body we are all familiar with the typical ringworm, beginning with a delicate furfuration or a papule or rarely a vesicle, and in the course of a few days developing, as a rule, into a perfect circle, the center of which seems somewhat sunken, gray or fawn or tan colored and scaling, while the circular periphery is elevated, scaly and frequently papular, or at times vesico-papular. There are other clinical varieties of ringworm on the smooth skin, but as a rule these are more truly direct extensions of growth from the neighboring affected portions of the scalp or the beard. Investigation has proved that these plants are derived from three sources, the human, the animal and the saprophytic.

The microscopical method. — We have at our disposal for microscopical study four different elements — hairs, scales, pus and nails. When the tissue has been removed from the affected area, we can improve its physical condition for examination by dropping upon it a little ether, which will remove the fat present, and secondly, by adding a few drops of hydrate of potash in the strength of 20–40%, which will dissolve

some of the rather opaque keratin which constitutes so large a part of scales and hairs.

Under the microscope, with the high, dry objective and with but a small aperture in the diaphragm, we shall find a more or less constant picture in the hair. We shall see in varying quantities parallel tubes of mycelium 2–3 μ in diameter divided by transverse septa into numerous elements 3–5 μ in length. Their corners are usually rectangular, but may be rounded. These elements may be so numerous and the septa so frequent that the presence of mycelial tubes may be hard to discern and then the picture suggests a tesselated pavement. In epidermic scales, in nails and in pus the image is more or less the same, but we must bear in mind that the mycelium does not appear in such abundance, and we must therefore have patience in our examinations, especially of the nails, and indeed we may sometimes be obliged to abandon our search, although from clinical appearances we still feel certain that the disease is ringworm.

If we look very closely with our naked eye at a hair removed from an area of ringworm, we shall note certain characteristics. If the hair comes from the common dry variety of the disease in a child's scalp we shall, perhaps, be able to see that the hair is swollen, but that there is but little evidence of abnormal structures surrounding it. If we subject this hair to the microscope, we shall find that the mycelia are, in truth, inside the hair — a condition which Sabouraud has termed endothrix. If, again, we examine a hair from a kerion we shall find that it is surrounded by a collar of gray material, and microscopically we shall find this variety of mycelium to be wholly external in its habitat. This is Sabouraud's ectothrix type. Finally, in the less prevalent clinical varieties, we shall find a combination of the two sites — the endo-ectothrix types.

The cultural method. — Students of ringworm everywhere owe to Sabouraud the perfection which this method of study has now reached. It was he who solved the problem of artificial media, and evolved the following formula, which produces the most perfect results with the trichophyta, the microspora and the achorion of favus, but practically inhibits the growth of bacteria. This consists of maltose, 4; granulated pepton of Chassaing, 2; agar agar, 1.20–1.50; distilled water, 100.

This medium is poured into Erlenmeyer flasks, round bottles with narrow necks and large bottoms, to the depth of 2 cm. The hair, or the scales, or the nail is divided in a dry state into a very small particle and placed on the top of the medium. The flask is then closed with absorbent cotton and left in the open air of the room where the changes of temperature during the twenty-four hours provide proper aëration of the flask, so useful to the growth and development of the culture. The placing of the flask in the thermostat produces quicker response in the growths, but the danger of bacterial growth is much increased.

On the third day the characteristic growth begins to appear, and if no other organisms — bacteria or molds — are present, allow the culture to continue. If contaminations are present, reinoculate. At the end of three to four weeks the growth will have nearly filled the bottom of the flask, and then, if the preparation is to be kept, place a few drops of formaldehyde on the cotton and cover the whole surface with sealing wax. By this method cultures can be kept indefinitely. In this way Sabouraud and others have been enabled to produce twenty or more forms of cultures varying amongst themselves in color, form, consistency, rapidity of growth, etc. Naturally, many of these various types are too rare to concern us here, but in passing I must describe a few of the commonest.

The crateriform type consists of a yellow or fawn-colored, powdery growth heaped up with slanting, eroded sides and hollowed-out, eroded center.

The round, feathery, white growth with central tuft forms another frequent appearance.

Another variety is acuminate in the center, from which radiate sloping sides and deep furrows.

Other types are pink, black, violet, or brown in color. Some are dry and powdery, others moist and soft, others velvety, but all arise from a definite source, always remain true to their type, and will always produce similar growths provided that the medium be always identical in the proportions of its constituents and in the steadfast chemical identity of its individual elements.

The mycological method. — The best method of study is by means of the hanging drop. Use the medium described above, inoculate from a vigorous mother colony, place in the thermostat, and at the expiration of five or six days fix the culture by heat, and stain with eosin, 1–500. In this manner one is able to demonstrate three modes of fructification in the plant, — the endoconidial, the terminal bunch-of-grapes spores, and the terminal multilocular spindles.

These vary also in abundance and rapidity of growth in the various types of the plant, and offer the expert a fairly constant means of differential diagnosis.

From all these sources of knowledge fairly constant axioms can be drawn:

1. That the flora of individual countries varies much, both in proportionate distribution, varieties of the plant, and in minor details of individual varieties.

2. That material from the same individual provides the same species always.

3. That members of the same family are infected by the same plant.

4. That the alopecic ringworm of the scalp is due to an endothrix species of human origin, producing a crateriform culture fructifying for the most part by terminal spindles.

5. That the kerion Celsi is due to an ectothrix species derived from the horse, producing a feathery, white, flat culture, and fructifying for the most part by terminal bunch-of-grapes spores.

6. That almost all other clinical varieties are due to endo-ectothrix species derived from ani-

mal sources like the calf, the hen, or other animal, producing colored or white cultures.

7. That old cultures, if left to themselves, will produce pleomorphic or deviate forms of growth, which will reproduce the daughter types *ad infinitum*, unless inoculated into animals, when reinoculation will produce the original mother growth.

THE MICROSPORA.

Clinically, this group produces about 90% of the scalp ringworms observed in Boston. This large etiological percentage is not present in Paris, in London or in Italy, while in Germany and in Austria the plant is practically unknown.

The changes produced in the scalp by the invasion of these organisms are very constant. One or more circles of alopecia are formed, the skin being covered with an abundant layer of ashen gray scales, through which protrude many stumps of broken-off hair, each one surrounded by a band of gray detritus. The microspora, in the vast majority of cases, confine themselves to the scalp, and when seen on the non-hairy parts produce by direct extension a furfuraceous, irregular patch. Rare exceptions to this rule are, however, on record.

Microscopically, we find again a very different picture from that of the true tricophyta. Here mycelial filaments are very rare, but there is everywhere an abundant growth of spores completely covering the hair. The spores are 2–3 μ in diameter, round unless so abundant that mutual compression renders them polyhedral, and in their relation to each other they suggest a mosaic. When the spores appear in less profusion we can sometimes detect a few mycelial tubes. These threads run with the long diameter of the hair and are about 3 μ in diameter and present but few transverse septa. By careful focusing it will be seen that this variety of fungus surrounds the hair, tending but little to invade the shaft — a true ectothrix growth. When seen in the shaft itself the plant almost always assumes the mycelial form of growth.

Culturally, various types of growth result, according to the source of the inoculated plant. The human microsporon produces a circular colony, white or buff in color, with a central tuft and a surrounding downy growth which may or may not develop periodic difference in the abundance of growth resulting in concentric circles in the culture. Depressed radii may also extend outward from the central tuft, producing a more complex picture.

The dog microsporon grows more rapidly and produces a central elevation with fine, feathery surrounding growth of yellow color. Here concentric circles of growth are the rule.

The equine variety is very common in horses, but rare in man. The culture presents a central tuft, from which radiate many deep, irregular furrows, and the whole growth assumes a pinkish hue, deeper in color the higher the percentage of maltose in the medium, an idiosynerasy which provides, of course, an easy means of identification.

Mycologically, also, the microspora exhibit their variations from the tricophyta. The microspora liquefy gelatine much more slowly than do the tricophyta or the achorion of favus. The endoconidial type of fructification is much more common in the microspora, the terminal spindles are larger and have spines along their sides, which are never seen in the tricophyta, and finally the acladium type of reproduction is practically limited to these plants and the acladia appear as cylindrical, sessile buds on the supporting mycelium.

FAVUS.

The parasite of this disease was discovered in 1839 by Schönlein, and has since been known as the achorion Schönleinii. From this early date until the present many investigators in many countries have studied this plant.

To-day we recognize that the disease is derived most commonly from human sources, usually by the use of infected articles, but animal and saprophytic varieties of the plant can also give rise to favus, and dogs, cats, fowls and mice as well as contaminated vegetable matter have been proved to convey the contagion.

Clinically, the disease is rare here, and when found almost always occurs in immigrants. As you well know, the disease — unless in the nails — attacks a hair follicle first, grows down the shaft, then upward toward the distal and superficial end of the hair, and at the same time spreads peripherally on the skin until the next hair is reached, when the process repeats itself. The growth is slow, but the inevitable result is scar tissue. Broken stumps of hair do not occur, as the plant does not damage the shaft to this extent, but the hair is somewhat loosened in its follicle, and soon falls, producing alopecia. The pathognomonic sign of favus is the scutulum — the little yellow, cup-shaped mass composed of a pure culture of achorion mycelia supporting at their aërial ends their fructifying organs.

Microscopically, the hair presents two pictures. In the first and less common type, spores are absent and the plant appears in the mycelial state only. The tubes are 2–3 μ in diameter, divided up by transverse septa into elements 12–15 μ in length. These fine ribbons extend up and down the shaft in parallel lines dividing dichotomously at very acute angles.

The commoner picture presents mycelial filaments and spores, both varying much in diameter. The mycelial tubes are not very abundant, and grow, for the most part, in the long axis of the hair, but frequently bend slightly across the shaft, or even extend quite transversely around the hair. They divide often into three or even four branches. The spores are for the most part rectangular, but great variations in size and in shape are much more common than in the trichophyta.

Culturally, we find that glucose with an additional amount of pepton forms a more congenial soil for the plant to grow upon than the formula recommended for ringworm cultivation. Even with this favorable medium, bacterial contam-

ination is not infrequent,— in fact, artificial cultivation of favus is difficult. The curious fact has been noted that after repeated inoculations a given plant acquires a more vigorous growth, and again successive inoculations of daughter colonies may eventually return to the mother type without passage through animals, an exception never observed in the tricophyta.

Mycologically, reproduction in the plant is by the three methods common to this group of plants. The endoconidial, the acladial and the fusiform types are all reciprocally present, but observers are beginning to feel that the more closely they investigate the achorion plant, the more they are inclined to believe that the theory of the plurality of the species rests upon an insufficient foundation. They are beginning to believe that the achorion is a monomorphous plant very closely akin to the tricophyta.

THE USE OF THE X-RAYS IN SOME SKIN AFFECTIONS.*

BY F. S. BURNS, M.D., BOSTON,
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As the time at my disposal is short, and treatment in several parasitic diseases having been already alluded to, I shall confine what I have to say to the use of the x-rays in several affections.

Among the numerous affections for which the x-rays have been used with more or less success are several parasitic diseases of the skin. The most important of these are, *sycosis vulgaris* or *folliculitis staphylogenes*, chiefly affecting the bearded parts of the face; the several varieties of ringworm; favus of the scalp, and cutaneous tuberculosis.

All who have had occasion to treat folliculitis of the beard know how frequently refractory this affection is to the best therapeutic measures we possess. Many cases, it should be admitted, are improved and frequently cured by antiseptic applications alone, but it is only too common to see patients in whom the trouble relapses or fails to improve but little under such remedies.

It is not too optimistic an assertion to make, I think, that in the x-rays we possess a remedy which will heal almost every case of folliculitis, and cure a large number, if properly applied.

The pathology of folliculitis consists in an invasion of the hair follicles and ducts of the sebaceous glands by pyogenic cocci. In the follicles minute points of suppuration develop, in the midst of which is the hair. The intervening skin reacts to the inflammation and once the process is begun the hairs themselves act as a persistent source of irritation.

In accomplishing their result in this affection the rays act in two ways: First, by modifying the inflammation and conditions in the skin, the bacteria are no longer in a favorable habitat for development, an indirect bactericidal action resulting in speedy amelioration of the acute symptoms, and secondly, by producing a temporary alopecia over the affected area, the irritating hairs are removed, exposing their follicles more completely and thereby giving the rays and any concomitant applications a more favorable field for action.

When lesions are extensive and there exist small abscesses, formed from confluence of follicular pustules a few applications with moderately soft tubes of five minutes' duration, applied every other day, will cause a ready remission of the condition. The pustules dry and the pruritus and tension of the skin soon subside. When, however, the lesions consist of numerous disseminated perifollicular pustules, the hair remains intact, continues to grow and serve as constant source of irritation. In this latter condition, temporary removal of the hair is much to be desired. Manual epilation has long been a recognized procedure but possesses the disadvantages of painfulness and tediousness, and is followed by too quick regeneration of the hair. Temporary alopecia can be produced by means of the x-rays painlessly, in a short time (one to two weeks) and with complete assurance that the hair will return in from one to two months.

To produce this epilation, I use a tube having a penetration of ½ centimeter of albuminum; the rays generated from such a tube being almost entirely absorbed by the skin. The affected area should be exposed at five inches distance from the anticathode and applications of five minutes each should be given every other day for five times. Treatment is then omitted for a week, at the end of which time if the hair has not fallen, applications should be resumed. Usually the alopecia occurs after the first series of sittings.

Seven years ago Sabouraud predicted that the antiseptic treatment of ringworm would never be wholly satisfactory, and that the solution of the problem could only be furnished by an agent capable of temporarily suspending the function of the hair papillæ. Since that statement was made, an agent capable, partially at any rate, of fulfilling that requirement, has been found in the x-rays.

Temporary removal of infected hair can be produced, and as a result elimination of the diseased focus, since the hair, which mainly harbors the parasites, shall have been removed. The rôle of the rays, therefore, in relation to the cause of the disease is an indirect one; that is, they are not parasiticidal, but remove that portion of the integument invaded by the fungi. Practically, however, there is always some co-existent infection of the skin in the immediate neighborhood, so that concomitant antiseptic treatment is necessary to combat that of the disease.

As in the treatment of pyogenic sycosis, the regeneration of hair begins in from six weeks to two months. The intervening period of alopecia is very desirable, for it gives ample time to carry out the antiseptic measures thoroughly and to efficiently eradicate any remaining fungi from the scalp. The possible errors that may occur in the course of treatment are, *viz.*, an incomplete

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alopecia that leaves hair still infected; overlooking obscure points of infection; and the possibility of reinoculation during treatment. The technique used in ringworm is practically the same as that used in pyogenic sycosis.

Favus, although a disease that one is but rarely called upon to treat in private practice, is occasionally seen in hospital clinics, occurs most frequently in recent immigrants from Russia and is a notoriously obstinate affection to all methods of treatment. The value of the x-rays in favus may yet be said to be debatable. Probably the main advantage in their use, as in ringworm lies in their ability to produce epilation, thereby getting rid of a major portion of the disease, and giving parasiticides a more favorable field on which to act. What has been said of the use of x-rays for ringworm applies equally to favus. In the latter affection, however, the achorion occurs abundantly in the upper strata of the skin as well as within the hair, and consequently requires protracted applications after the hair is removed. As an adjuvant, the rays are admitted to be of value in favus of the scalp, but as the rays have little influence on the organisms themselves, they cannot be expected to favorably influence affected nails.

One of the most valuable additions to therapeutics of skin diseases in recent years is the application of the x-rays in cutaneous tuberculosis. A large percentage of tubercular lesions of the skin are curable by this method, the difficulty encountered and time required to effect the cure being broadly proportional to the extent of involvement and amount of tubercular growth it is necessary to destroy. When one reflects on the frequency of occurrence and chronicity and rebelliousness to cure of tuberculosis of the skin, the value of measures offering any approach to definite results cannot be overestimated.

Various methods of technique have been devised for the application of the x-rays to cutaneous tuberculosis all resulting in improvement, and, I think, if persisted in, cure. Two procedures are now generally recognized: one advocating protracted exposures with moderately hard tubes without causing visible reaction in the skin, a long and tedious method frequently protracted to a year or two; the other procedure recommending the use of soft tubes and the production of dermatitis over the affected area, causing necrosis of the tubercular tissue. The latter course has for some time seemed to me to possess such distinct advantage that I have quite discarded the former. Briefly, the advantage of the latter method consists in shorter sittings and number of exposures, much curtailing the whole course of treatment.

The production of dermatitis by the x-rays in tubercular growths, when the dosage is properly regulated, I have never seen attended by undesirable results; on the contrary, the greatest progress in healing seems to date from the time the reaction appears. It is important, however, while intentionally provoking this dermatitis, that all neighboring healthy skin be well protected by heavy leaden masks.

It has seemed to me that an error has existed in expecting too much of the x-rays, in requiring them to destroy considerable areas of tubercular tissue, often hypertrophic and deeply seated, before cicatrization could begin.

Without claiming especial originality for the plan, for I have since found it has been practiced to some extent by others, it occurred to me that removal of a major part of the affected skin by excision and curettage would be a rational way of facilitating the work of the rays, using them later to search out all remaining foci of infection and to stimulate repair of the resultant ulcerations.

Acting on this hypothesis, during the last six months, I have curetted most of the cases of lupus and scrofuloderma occurring in the service of Dr. C. J. White at the Massachusetts General Hospital, as a preliminary procedure before application of the x-rays.

The patients were usually entered to the ward for skin diseases for a few days, their lesions thoroughly curetted under ether and then discharged to the Out-patient Skin Department for further treatment by the x-rays. In the case of several children and in several adults in whom recovery occurred with unusual rapidity, the patients were under daily observation in the ward until they were discharged healed.

The results obtained by this method have seemed satisfactory and have so much augmented the eradication of lesions that it is now advised in all favorable cases. The open wound usually heals by granulation in from four to six weeks, rarely longer than two months, and the smooth, elastic, non-contractile character of the cicatrix compares favorably with cases healed exclusively under the rays.

It has been observed that patients improve much more rapidly in summer than in winter, probably due to the greater amount of sunshine present and the ability of the patients to be more out of doors in the former season.

Although it is not claimed that treatment by this plan cures absolutely in a definite number of weeks, nor that nodules do not crop out and frequently require considerable after-treatment, afflicted patients are quickly rid of a major portion of their disease, and their subsequent treatment is brought within the bounds of reasonable time. Next to the ability of the x-rays to seek out minute foci of infection, their power of causing the formation of scar tissue of a peculiar character is most remarkable. This tissue is, for the most part, smooth, elastic, usually covered to a varying degree with newly formed blood vessels, and during its formation contracts but little and results in remarkably inconspicuous deformity.

ACCORDING to the *Medical Record* the Health Committee of the House of Delegates, St. Louis, has recommended the erection of a building on the outskirts of the city to be used especially for the care and treatment of tuberculous patients.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D.,
AND
JOHN LOVETT MORSE, M.D.

MYELOCYTES IN THE BLOOD OF CHILDREN.[1]

They studied the blood of 180 cases of different types. These included diseases of the blood, cases of feeble vitality, cases of chronic general diseases associated with disturbances of nutrition, such as congenital syphilis, rhachitis, tuberculosis, scrofula and chronic intestinal catarrh, as well as a number of unclassified diseases and healthy infants.

They studied seven cases of diseases of the blood and found myelocytes in numbers varying from 1.5% to 17%. They conclude that myelocytes are constantly present in infantile anemia associated with splenic tumor and nucleated red corpuscles without any relation to the clinical or etiological differences in the individual cases.

They found myelocytes varying in numbers between 3.5% and 12.5% in the blood of 6 infants, either premature or twins, examined between the second and sixth weeks. They conclude that numerous myelocytes are present in the blood of a great majority of infants suffering from congenital debility.

In 16 cases suffering from disturbances of nutrition due to hereditary syphilis they found myelocytes in 12, varying in number between 2% and 6%. They conclude that myelocytes are present in the great majority of the cases of this disease and that their presence in the blood is usually not associated with any symptoms of anemia.

They studied the blood in 51 cases of rhachitis; they seldom found myelocytes in the light cases and in only about one half of the severe cases. They were always in small numbers. The frequency was about the same in rhachitis associated with enlargement of the spleen. The number usually varied between .25% and 1%, although in one case it rose to 3%. They found myelocytes in 2 of 6 cases of scrofula and in 4 of 15 cases of tuberculosis. The number of myelocytes averaged higher than in rhachitis, varying between .5% and 2%. They also found myelocytes fifteen times in nineteen children suffering from cachexia due to intestinal catarrh. They conclude that myelocytosis is almost constant in children suffering from hereditary syphilis, tuberculosis and chronic intestinal intoxication, but that it is much less frequent in those with rhachitis and scrofula.

Among other diseases they found myelocytes in 12 cases of 16 suffering from inflammation of the lungs and in all of 5 cases of acute dyspepsia, the percentage in some of the cases reaching as high as 5.75%.

They studied the blood of more than 20 healthy children in the first week of life. They were able to find occasionally very typical myelocytes; even at this age, however, they were rare and in small numbers. They never found them later than the first week.

They conclude that their observations show that the presence of myelocytes in the blood of sick children in the first year of life is very frequent and without significance. It is due to the ability of the infantile hematopoietic organs to react to all influences. The intensity of this myelocytic reaction depends on the one hand upon the harmful influence and, on the other, upon the age of the child and individual peculiarities of the given organism. The harmful influences which most frequently produce myelocytosis are in all probability those which flood the blood with toxins. In general, the number of myelocytes increases directly with the amount of intoxication. The number of myleocytes, however, cannot be used in prognosis unless the other factors already mentioned are taken into consideration.

Their investigations also showed that in general the reaction of the nucleated red corpuscles occurs much less frequently in the blood of sick children than the myelocyte reaction. They conclude that the presence of a large number of nucleated cells, especially megaloblasts and gigantoblasts, in the child's blood, is always evidence that the diseased process which is taking place in the blood is more important than the causative condition. The presence of nucleated cells is, therefore, of great significance in prognosis.

[1] Zelenski and Cybulski: Jahrb. f. Kinderheilkunde, 1904, Vol. lx, p. 884.

THE DIGESTION OF CASEINS AND ITS RELATION TO CERTAIN PROBLEMS IN INFANT FEEDING.[2]

Van Slyke and Hart, in their studies of the production of cheeses, established the fact that both organic and inorganic acids have a definite action upon calcium casein, the form in which casein exists in combination with calcium in fresh cows' milk and upon calcium paracasein, the clot produced by the action of rennet on fresh milk, forming first free casein and free paracasein and then compounds of casein and paracasein with the acids.

The proteids of milk are divisible into casein and a group of soluble albuminous bodies. These latter are not precipitated during digestion, but remain in the fluid which separates from the casein curd and are readily absorbed by the digestive tract. The quantity of proteid or nitrogenous bodies contained in the milk of different species varies very decidedly. This variation is in direct proportion to the rapidity with which the young of the species grow and become independent of the mother's mammary glands for nutrition. The physical characteristics of the casein curd formed during digestion, however, bear a definite relation to the type of digestive organs peculiar to the species. The caseins of various milks probably differ from each other and react dissimilarly to rennet, acids and the digestive juices. The caseins of different milks are not interchangeable as regards digestibility for the stomachs of the young of different species.

[2] Thomas S. Southworth: Medical Record, March 4, 1905.

The physical character of the curds of milk, both in size and density, varies according to the species of the mammal. The tendency to shrink into tough curds is especially marked in cows' milk.

Our knowledge of the chemical changes which take place in casein when acted upon by acids, as during digestion, have until very recently been based largely upon theory owing to Hammarsten's incorrect deductions from his experiments. The discoveries of Van Slyke and Hart make it clear that acids have a definite chemical action upon calcium casein and calcium paracasein, and have furnished proof that no gastric digestion by pepsin takes place until calcium casein or calcium paracasein has been acted upon by acid and converted either into free casein or free paracasein, or into their compounds with acid.

The first secretion of the stomach of the young is the ferment rennet. The rennet ferment acts upon the calcium casein of the milk, forming a soft clot which is called calcium paracasein (junket). If no acid is present this paracasein clot may pass on into the intestine where it is readily digested by the pancreatic and intestinal secretions. The pepsin secreted by the stomach will not attack calcium paracasein in the absence of acid. When hydrochloric acid begins to be secreted by the stomach this reacts with the calcium paracasein formed by the action of the rennet ferment, making first free paracasein and then a definite chemical compound known as hydrochloride of paracasein which is fitted for gastric digestion and is now readily attacked by pepsin, and true stomach digestion begins.

The digestion of the infant is in process of evolution and is not to be thought of as the same as the digestion of the adult. The stomach in the beginning secretes no acid, but later produces gradually increasing amounts. It is a remarkable fact that while milk retains practically the same composition throughout lactation, it is changed by the action of the developing gastric secretions into forms and compounds which require at first moderate, and later more extended, gastric digestion, by which means the stomach is progressively called upon to perform more and more work and therefore is developed anatomically and physiologically.

If the stomach secretes but a small amount of acid, but little of the soft calcium paracasein clot is changed into the somewhat tougher free paracasein through the union of the acid with the calcium. A part only of the calcium paracasein is therefore prepared for gastric digestion by pepsin, while the remainder of the soft unaltered calcium paracasein which cannot be attacked by pepsin passes on into the intestine where it undergoes digestion by the intestinal ferment trypsin and other digestive secretions. A still more abundant secretion of gastric juice, that is, of hydrochloric acid plus pepsin, will change more of the milk into a form suited for gastric digestion. The work performed by the stomach is thus normally regulated automatically. When the hydrochloric acid comes to be present in amounts greater than necessary to form free paracasein, hydrochloride of paracasein is formed. This salt is more difficult to digest in the absence of uncombined acid than free paracasein, but when there is enough acid secreted to give uncombined free acid, the acid compounds of paracasein are more rapidly digested by pepsin.

The nursing infant secures from the breast a fresh and unchanged milk adapted to its peculiar needs and digestive ability. When cows' milk is substituted with its different proteids and its liability to changes of bacterial origin, new factors are introduced which require consideration. Other acids, notably lactic acid which is the normal acid of sour milk, form definite paracasein compounds as well as does hydrochloric acid. Since lactic acid-forming bacteria are invariably present in commercial cows' milk, however carefully handled, the action of the lactic acid produced by them must be definitely reckoned with. If milk which has begun to sour through the development of lactic acid, but which has not yet curdled, or in which the lactic acid forming bacteria have had an opportunity to multiply, even though their growth has not advanced far enough to make the milk taste, is taken into the stomach where it meets with rennet even in the absence of hydrochloric acid, the rennet ferment will attack it, forming curds which rapidly turn into tough curds of free paracasein and lactate of paracasein.

Hydrochloric acid and pepsin are presumably secreted by the normal stomach in physiological proportions to each other. When more acid is introduced from outside in the form of lactic acid or is produced by lactic acid bacteria in the stomach, the total acids are disproportionate to the amount of pepsin secreted. More of the paracasein is therefore transformed by the excess of acid into a form calling for gastric digestion than the stomach can care for. Unfortunately, this kind of curd is fitted only for gastric digestion and not for intestinal digestion and may therefore cause intestinal disturbance. It is this production of lactic acid and the consequent increase in the quantity of tough curd which often produces a portion of the pernicious results of food prepared from unpasteurized or unsterilized milk which is not kept properly cooled.

On the other hand, if the souring of milk has advanced outside the body to the point of complete curdling with the formation of curds of lactate of casein (not paracasein) in a very finely divided state as is seen in buttermilk, the rennet ferment has no action on these curds when the milk is ingested, and the formation of tough acid paracasein curds is prevented. Such a compound of casein with acid is less tough and more finely divided, and therefore to this extent, at least, more digestible than the corresponding compounds of paracasein with acid. The surprising results claimed by various authors from the use of buttermilk, if substantiated, will probably be shown to rest upon this basis.

Pasteurization has a definite although indirect influence upon the digestibility of the calcium casein of cows' milk, in that by destroying the

lactic acid germs and preventing the formation of lactic acid, it allows the hydrochloric acid in the stomach alone to form combinations with the calcium paracasein. The free paracasein and hydrochloride of paracasein which are thus formed will more probably be in proportion to the amount of pepsin secreted.

One of the reasons of the utility of alkaline antacids in milk mixtures is to be found in the fact that in the presence of an alkaline reaction the rennet ferment is retarded or inhibited and clotting and curding of the milk is prevented or delayed, allowing the escape into the intestine of part, at least, of the still fluid milk.

Peptonization, or, as it should properly be called, "pancreatization," according to the length of time which the ferment is allowed to work, changes more or less of the casein into a non-coagulable form and throws the work of digestion on the intestine. The alkali used in the preparation of the milk has the same result. The addition of various forms of pepsin, which always contain the rennet ferment, merely results in the formation of calcium paracasein. That is, it does not have at all the same action as the preparations of the pancreas and should never be used as a substitute for them.

Milk diluted with even as much as ten parts of water can be so manipulated that the curd formed by adding rennet and dilute hydrochloric acid will be all in one small piece. This shows that it is possible, even with very dilute milk, to have typical solid curds form in the stomach. A consideration of the reactions of casein with rennet and acids shows that the smaller the amount of casein in the food the greater will be the relative proportion to it of the hydrochloric acid secreted by the stomach. Such a relative excess of acid tends to form the tougher hydrochloride of paracasein. If the food is made stronger, that is, if more milk within reasonable limits is added to the mixture, the amount of casein is increased and the same amount of hydrochloric acid is combined with the larger amount of casein and so tends to form the softer and more digestible curds of free paracasein. This seems a possible explanation of the improved digestion and more normal stools which not infrequently follow a radical increase in the strength of the food when previously very dilute mixtures have been accompanied by indigestion and curdy stools. It also demonstrates why large quantities of dilute food may fail when smaller quantities of a more concentrated food will succeed. Moreover, the continued use of highly diluted food does not furnish a proper mechanical stimulus to the stomach and may lead to deficient secretion and faulty digestion.

We must never lose sight of the fact that cows' milk was made for the peculiar requirements and digestion of the calf, and that however modified it was not primarily intended for a human infant's stomach, and that it is a strange substance to which the stomach must adapt itself to digest. It must be remembered that there is a great deal in infant feeding beside dilution of the milk and the addition of sugar. The main thing is to get the child to absorb sufficient nourishment for well rounded development, and there is more than one way of doing this. If the stomach makes a botch of digestion the intestine can often be made to do the work, but this should not be continued after the stomach is again able to perform its functions. If the intestine is incompetent, the gastric digestion must be assisted to perform its functions creditably.

(To be continued.)

Reports of Societies.

ABSTRACT REPORT TWENTIETH ANNUAL MEETING ASSOCIATION OF AMERICAN PHYSICIANS.

HELD IN WASHINGTON, D. C., MAY 16 AND 17, 1905.

(Continued from No. 24, p. 704.)

A CASE OF HEMOPHILIA WITH SPECIAL REFERENCE TO JOINT DISEASE.

F. P. KINNICUTT, New York: The writer referred to a patient, sixteen years of age, with a negative family history as to hemorrhagic diathesis. The skin was of very fine texture. At the age of five months there was a small swelling in the leg which was discolored. When there was a dark lump on the chest, lasting for several weeks. At two years of age the patient had epistaxis, which was controlled with difficulty, and up to the age of five years hemorrhagic spots frequently appeared on different parts of the body. Attacks of what appeared to be inflammatory rheumatism then began. Nose bleed again occurred when eight years old, which was controlled after many hours' effort. About this time a blow on the thigh caused a lump and a large extravasation. The following year bleeding from the nose again occurred and lasted several weeks. He then had what appeared to be an attack of rheumatism of the hand. The patient died seven years after first seen by Dr. Kinnicutt. The joint symptoms were supposed to be of rheumatic origin. Temperature was slightly elevated. Attacks of hematuria occurred. A large interstitial hemorrhage occurred in the extremities. Again he had attacks of severe hematuria and effusions into the left elbow joint. There was pain and the temperature went to 103.5. Later, the patient complained of severe pain in the lower part of the abdomen and became pale; the abdomen became distended and rigid, and there was considerable tenderness. Temperature 191, pulse 120. The symptoms became grave, but finally absorption occurred. Again, in 1904, acute symptoms occurred, with abdominal pain. No blood was passed by the bowels. In twenty-four hours the patient died.

CLINICAL NOTES ON OPIUM IN MYOCARDITIS.

J. H. MUSSER, Philadelphia: Dr. Musser commented on the beneficial effects which occurred in many typical instances of this affection from the use of opium, and said that he had been much impressed with the good results obtained in one particular case during the past winter in which the continued use of small doses of the drug was the only thing that gave any relief. Increased diuresis always followed its employment. In the senile group of cases it was of decided advantage. It prevented the peripheral impressions causing shock and prevented the occurrence of insults to the cardiovascular system. In cases with recurring attacks of dyspnea or angina pains morphia could be used for a short

period to get the patient out of these grave impending attacks. Opium is not contra-indicated in chronic myocarditis in spite of the presence of nephritis. In cases of chronic myocarditis attended by melancholia and hypochondriasis it is a sustaining and supporting remedy. It was, he thought, much more satisfactory to rely upon opium in these cases than to employ the so-called cardiac drugs.

DISCUSSION.

M. H. FUSSELL, Philadelphia, agreed with the essayist and cited the case of a patient having an extremely weak heart following an attack of pneumonia during the fall in which small doses of morphia hypodermically (1-10 gr.) were used with excellent results. The urine increased in quantity and the patient recovered entirely. The use of the drug was continued in this way for several weeks. The first time he had used morphia in heart trouble was with a patient whom he supposed to be dying, but who rapidly improved on the administration of the drug.

BEVERLY ROBINSON, New York, thought that in many cases of so-called heart failure opium acted as a good stimulant. He called attention to the importance of the condition of the pupil in these cases and thought it should be carefully watched.

A. JACOBI, New York, thought that in many of these cases opium was just as useful as strychnia was harmful, and said that no remedy had done more harm in these cases than strychnia.

SOME PHASES OF THE NEUROTIC HEART.

BEVERLY ROBINSON, New York: Dr. Robinson said that nervous disorders of the heart were not well understood and presented a number of reasons. Frequently vascular or muscular changes present differentiation. Cases were considered of various etiology; well defined nervous disease; organic changes in the vessels; diseases of the stomach, bowels, etc., and those where the cause varied. The pathological findings were difficult to determine. Treatment was very discouraging; digitalis was of little value. He emphasized certain factors as: (1) An apparent or evident slight enlargement of the heart, with or without dilatation, was occasioned or preceded by cardiac neuroses; (2) There was a condition of secondary anemia, as shown by blood examination, which resisted treatment of all kinds and in which, unless the heart muscle itself was involved, digitalis did no good; (3) There was an impaired nutrition with accompanying slight cardiac dilatation which might remain stationary and become functionally compensated.

REPORT OF A CASE OF PNEUMOCOCCUS SEPSIS.

J. S. THACHER, New York: An attack of acute lobar pneumonia was followed by empyema and an intense and rapidly progressing general infection by the pneumococcus with malignant endocarditis and meningitis. At autopsy there was found incomplete resolution, ulcerative endocarditis and purulent meningitis. The case was interesting chiefly because of the great virulence of the infection and the rapidity with which the endocarditis and meningitis developed.

REPORT OF SIX CASES OF PERFORATION IN TYPHOID FEVER IN CHILDREN.

J. P. CROZIER GRIFFITH, Philadelphia: Reference was made to the variance in published statements regarding the frequency of perforation in typhoid fever in children, the general trend of opinion being that it is rarely seen. More recent observations tended to show that it probably occurs more often than has been supposed. The writer described six cases occurring under his own observation. His first case was a girl of twelve. On the twenty-third day of the attack she developed severe abdominal pain without vomiting or collapse or any fall of temperature; not until the following day did she appear very ill. Twenty-four hours later vomiting began and there was slight abdominal pain. Distention of the abdomen occurred and the diagnosis of perforation was made. No operation was possible in this case. Case II was a boy of eleven, who had pleurisy as a complication of typhoid fever of a mild type. One day he was given ice cream as a result of which abdominal pain occurred with vomiting and a slight rise in temperature. The day following the patient became worse, and it was thought that he had an attack of severe indigestion. Not until two days later was it discovered that he had suffered a perforation and operation could not then be performed. Case III presented symptoms of perforation with a sudden drop of temperature from 103 to 97, accompanied by severe abdominal pain. Forty hours later the child was operated upon, but not successfully. Case IV was a boy of eight, the perforation occurring in the third week of the disease. The first symptom was vomiting with no fall in temperature and no collapse nor abdominal pain. Moderate abdominal distention. Operation suggested, but refused. Case V was a girl of four years who was in convalescence having had no fever for a week. About the end of the third week perforation occurred, when she complained of some stomach ache. The temperature did not change and she did not appear to be at all ill. She was sitting up in bed and then occasional vomiting occurred without abdominal symptoms. She died the next day without abdominal distention or pain. Case VI was a girl of six who was in the second week of the disease. Had a good pulse, and but slight tenderness on firm pressure. This case was operated upon, but died in a week. Basing his conclusions on the condition seen in most of these, Dr. Griffith thought that the accident is more difficult to recognize than in the adult. There was often a less degree of constitutional impression. Abdominal pain and tenderness might be absent or trivial, and in any case the statements of a child were less to be relied upon than in later life. Vomiting was so frequent a symptom in different diseases of childhood that its occurrence in perforation was of little diagnostic import.

DISCUSSION.

A. JACOBI, New York, said that the diagnosis in these cases was rendered the more difficult because perforation occurred without the presence of diarrhea or without its having preceded it throughout the course of the disease. Diagnosis was almost impossible in many of these cases.

GEORGE L. PEABODY, New York, did not think we should look for diarrhea as a symptom of perforation, as it had been his experience to find perforation in those cases that were not accompanied by diarrhea at all.

HEMATEMESIS FROM GASTRIC ULCER; NOTES ON OVER TWO HUNDRED CASES.

W. GILMAN THOMPSON, New York: The paper was based upon data from the records of the Presbyterian and Bellevue Hospitals and the writer concluded that operation in cases of this kind were justified and should be undertaken more often than now. He admitted the great difficulty of accurate diagnosis. Examination of the gastric contents, especially when done but once, was of no value whatever in diagnosis nor in prognosis as to whether operation should be done or not. He also dissented from the recent view that it was desirable or possible to classify gastric ulcers as to hematemesis.

In several of the cases unexpected conditions had been found that were relieved by operation. The surgical records were encouraging, one surgeon having performed 123 gastrotomies for the condition and lost only 2 as a result of the operation. Earlier operative interference in these cases seemed desirable.

DISCUSSION.

F. P. Kinnicutt, New York, said that it seemed to him important to bear in mind how frequently perforation with hematemesis occurred and yet the point of ulceration could not be discovered, even after the most careful search. He referred to a case operated upon by two eminent surgeons with a fatal result where, at autopsy, the most careful search was required to discover the lesion. He thought a second point of importance to remember was how frequently death seemed imminent, when the hemorrhage would suddenly cease and not recur; they recover and go for years without any further trouble. He cited another case which had been sent to the surgical ward for operation, when the hemorrhage ceased before the operation could be done and did not recur.

S. Solis Cohen, Philadelphia, referred to a case under his care in the Philadelphia Hospital, a man well advanced in years, a carpenter by trade, who suddenly had a profuse gastric hemorrhage without pain or other symptoms of a definite nature. The surgeon called decided that he was too weak for operation and it was postponed. He improved and then it was decided that there was no necessity for operation. The man later got worse and died and autopsy showed thirty or forty ulcers, twenty-nine or more of which had healed. Death was the result of the last large ulceration. With these multiple ulcerations there had been practically no symptoms. He also referred to a young girl of seventeen or eighteen who had a severe hemorrhage and recovered under medical treatment; he had recently been called to see her again when she had all the symptoms of gastric ulcer without hemorrhage. When operation was suggested she said that she had been so much worse before that she would take the chances of not being operated upon. He thought that we could not draw any dogmatic conclusions in the matter as yet; where a positive diagnosis could be made surgical measures should be resorted to as early as possible.

B. W. Sippy, Chicago, thought that in ordinary cases one should hesitate to operate when the hemoglobin had fallen below 40%. Had recently seen a case in which the hemoglobin was reduced to 20% from the hemorrhage, but thought in such a case the danger would not be as great as where the anemia had gradually developed.

John H. Musser, Philadelphia, called attention to the importance of remembering that cirrhosis of the liver might cause symptoms simulating gastric ulcer.

W. Gilman Thompson, New York, in closing the discussion said that collecting these cases pains had been taken to exclude cirrhosis and other complications. He thought that benefit was often obtained from a gastro-enterostomy even though the ulcer itself were not found. There were long surgical records now to show that the operation was a justifiable one.

THE RELATION OF CERTAIN STOMACH DISORDERS TO DIABETES MELLITUS.

John S. Sawyer, Cleveland: The writer said that treatment directed to the condition of the stomach determined by examination of test meals was given in nineteen diabetic patients for time enough, under suitable conditions, to afford usable results and in all these cases there was noted almost immediate relief from thirst, hunger and excessive polyuria, with improvement in strength in many, and in several cessation of the glycosuria. The known duration of the glycosuria was from six weeks to five years. The youngest patients were from fifteen to sixteen years. The cases were of varying degrees tested by the standard diet. The first of the series came under treatment five years ago. The measures adopted were those usually employed in the special treatment of chronic glandular gastritis, and varied according to the acidity and motor condition. Lavage had been signally beneficial, especially when used in the cases with motor insufficiency and hyperchlorhydria. In several cases on stopping treatment the thirst and polyuria recurred, with prompt relief on resumption. In a few cases similar results were gained without lavage. The cases showed that thirst, hunger and polyuria were not as dependent on hyperglycæmia as had been supposed, and that the stomach disorder was a factor of far greater importance in the treatment of diabetics than had been believed. A few tests of blood showed hyperglycemia persisting without thirst or polyuria.

James Tyson, Philadelphia, had frequently noted the association of an active gastric disturbance with diabetes and had thought that perhaps this explained the efficiency of Fowler's solution in these cases. He did not think that the acetone and diacetic acid formed could have been the result of a catarrhal gastritis, through it might possibly be. Asked if the doctor had attempted the treatment of diabetic coma by lavage, as from his remarks it might be expected to be of value in this condition.

A. O. J. Kelly, Philadelphia, asked if Dr. Sawyer regarded the cases cited as cases of true diabetes and whether he had formed any conception of the pathological process involved; also what effect he thought the treatment of the stomach had upon the disordered metabolism? He thought if in the treatment of the stomach we could benefit these cases it was a very valuable addition to our knowledge.

S. Solis Cohen, Philadelphia, had observed in cases of chronic glycosuria with septic conditions in the intestines as manifested by diarrhea, etc., benefit from washing the intestinal canal and administering intestinal antiseptics. Dr. Cohen asked if this treatment tended to diminish the acidity of the urine; he had been in the habit of giving an alkali, as bicarbonate of soda, sufficient to keep the urine alkaline, and desired to know if the writer of the paper attributed any part of his good results to the use of an alkaline solution?

John S. Sawyer, Cleveland, in closing said he believed the Vichy and Carlsbad waters did good by acting as a kind of alkaline lavage. He had had but one case of diabetic coma to treat and was not able to affect favorably this coma. As to the cases being true diabetes they offered all the requirements of clinical symptoms, — polyuria, thirst, hunger, weakness and glycosuria. As to finding the sugar in the blood that was not as yet a matter of easy or satisfactory observation. He had no wish to make any suggestion as to the etiology of the disease. As to septic conditions of the intestinal canal he thought that best treated by looking after the stomach and preventing its occurrence. As to the constituents of the urine it had not been possible in this material which was almost altogether private material to carry such experiments to the point of completion. The quantity of urine was reduced very considerably and the inference was that a very considerable gain was made by diminishing the destructive metabolism. He thought the alkaline solutions valuable as neutralizing the acids and as a solvent of mucus, but he depended upon the washing with the alkaline solution and not upon the administration of an alkali. The procedure did not interfere at all with any other advantageous measures that might be found desirable.

(To be continued.)

Recent Literature.

Wharton and Stillé's Medical Jurisprudence. Vol. II. Poisons. By ROBERT AMORY, A.M., M.D., and ROBERT L. EMERSON, A.B., M.D. Fifth Edition. Rochester, N. Y.: The Lawyers Co-Operative Publishing Company. 1905.

In the fifth edition of this work the editors have presented the most recent knowledge in chemistry and toxicology, combined with a careful description of the symptomatology and of the post mortem conditions in the many forms of poisoning, so that practitioners and students of both medicine and law will here find an interesting and convenient account of the various poisons, with the means best adapted to counteract the dangers which they cause and a well-considered summary of the facts available for diagnosis and prognosis during life and for determining the nature of the poison after death.

The editors have been obliged to omit much that was of interest and value in previous editions so that they might give in full detail the most recent information as to the action of poisons and the latest methods employed for their isolation and detection by chemical research.

In such an extensive work it is difficult to select special chapters for detailed notice, but allusion may be made to the excellent description of "Poisons in General," Chapter I, and to their classification as adopted by the authors, which is based in general upon their "chemical and physical properties," as well as upon their origin and mode of action to a certain extent.

Thus we have the following five classes:

I. Gaseous poisons. II. Inorganic poisons (solid and liquid). III. Organic poisons (non-alkaloidal). IV. Organic poisons (alkaloidal). V. Food poisoning, ptomaines, toxins, leukomaines.

This so-called "analytical classification" appeals to the chemist, as it is along these lines that he conducts his analysis.

Under Class I proper mention is made of the great increase in fatalities, both from accident and design, since the use of "water gas" for illuminating purposes has become general.

Among "inorganic poisons" antimony, arsenic, phosphorus and mercury are fully described, especially arsenic from its frequent importance in medico-legal cases. The diagnosis and treatment of acute and chronic lead poisoning are considered at length.

Carbolic acid, hydrocyanic acid and its salts, and oxalic acid claim special attention among "organic poisons" for their deadly qualities, and among the alcohols, methyl, or wood alcohol, calls forth a timely warning owing to the numerous deaths from its use and the impaired vision or blindness that may result. For instance, "Five men each drank a tumblerful of wood alcohol; two of these recovered entirely; one lost the vision of one eye, and injury to the vision of the other eye occurred; the other two died within twenty-four hours." Wood alcohol is used more or less in the manufacture of the essence of jamaica ginger, spirits of cologne and bay rum, not infrequent beverages with our alcoholic population, and it is not improbable that this noxious substance enters to some extent into the adulteration of the popular "whiskey" of the period.

Over-dosing from choral hydrate, chloroform, digitalis, sulfonal and the whole class of narcotic and stimulating drugs is duly mentioned, as are the dangers from the common use of the alkaloids, cocaine, strychnine, morphine, etc., so easy to obtain and so little under professional control.

There is a new chapter on ptomaine poisoning, and an important one on the detection and differentiation of blood stains completes the volume, which has a full and convenient index.

The valuable labors which Dr. Robert Amory and Prof. Edward S. Wood have for many years expended upon this work are now supplemented by those of Dr. Robert L. Emerson in the chemical and pathological features. In the Appendix are many judicial cases bearing upon the effects of poisons and the methods of detection, compiled by Prof. Charles Harrington, of the Harvard Medical School, also a summary of the experiments relating to the ingestion of boric acid and borax, made by the Agricultural Department of the United States, and the laws concerning medical examiners and coroners in Massachusetts and Connecticut.

A Textbook of the Practice of Medicine. For Students and Practitioners. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Physician to the Jefferson Medical College Hospital. Philadelphia and New York: Lea Brothers & Co. 1905.

This is an octavo volume of 1,120 pages, with 129 engravings and 10 full-page plates in colors and monochrome. The publishers' work is well done. As to the actual demand for another "Practice of Medicine," that is another question which perhaps may be allowed to answer itself. Many are already at the disposal of the practitioner and the student and not a few of these are good. The author has had a very considerable experience in hospital and private practice, in the teaching of clinical medicine and in the writing of medical books. The combination of these conditions is pretty sure to lead to the production of a Theory and Practice, or of a Practice of Medicine.

The present work is commendable and will be found useful by those who require a Practice of Medicine. Particular pains have been taken to present methods of treatment clearly and in a way to make them available for practice. Information dealing with subjects still uncertain and debatable has been excluded for the most part. Chapters on tropical diseases have been included. The first chapters are on infectious diseases, and the rest of the classification has an anatomical basis. A considerable section is devoted to diseases of the nervous system. The illustrations are clear and good. We notice on page 134, under cerebrospinal fever, meningitides for meningitidis.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, JUNE 22, 1905.

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THE MEDICAL PROFESSION OF VARIOUS COUNTRIES.

The *British Medical Journal* has undertaken a work of much value in attempting to bring within convenient compass a study of the medical profession in its educational, social and economic aspects. The number of this *Journal* for June 3 is practically given up to a report of the state of the profession in various parts of the world, not including in this issue the profession of North or South America. As an excuse for this omission, it is stated that the United States presents so wide a diversity regarding the conditions of medical practice, the standard of scientific education and the relations of practitioners to the state and to the public that the facts could not be brought within the scope of this inquiry. Information regarding conditions in South America was impossible to obtain. In spite of these omissions, however, the amount of material which has been collected affords a basis of comparison of the medical conditions in various countries which is of the utmost value.

It has been evident, during the past twenty years, that with the improved means of intercommunication various parts of the world have been brought closer together in medicine as in other departments of life. It is, therefore, natural that we should desire information regarding the status of a profession which, after all, has an absolutely undivided aim in distinction from political conditions and from those which exist in the legal profession. In spite of every effort, however, certain of the smaller countries of Europe have been neglected for various reasons, but so much remains that such oversights and omissions are of relatively small consequence.

The points which the investigation was particularly designed to elucidate are summarized in general as follows: The conditions of medical practice, degrees, curriculum, examinations and registration of diplomas, the rights and duties of medical practitioners, both in regard to the public and to the state; public medical services, exclusive of the sanitary services of the army, navy and colonies; the financial position of practitioners of various sorts, and under various conditions of population; the medical profession in relation to the law; quackery and illegal practice; protection of professional interests; social position of practitioners and their place in politics, and finally statistics of the profession with special relation to overcrowding.

Replies to questions concerning these various matters were requested, and the information received is given in the separate articles which constitute the bulk of the journal. It is not our purpose to enter into the details which follow, but certain facts are worthy of comment. It appears that everywhere the financial situation of the profession is unsatisfactory. In many of the European countries under consideration $1,250 to $2,500 seems to be a good average of professional earnings. Naturally, the cost of living in those countries in which these incomes suffice is very much less than in this country, for example, and this should always be considered in determining the standard of income. The situation in Berlin is apparently much more deplorable. All but 994 practitioners have an income of less than $1,100 a year. In Madrid 800 physicians are said to find it difficult to live. This unfortunate state of affairs is attributed in great measure to the overcrowded condition of the profession and it is, therefore, no doubt, a salutary check. The statistics regarding the social position of physicians show that in this respect Italy stands at the bottom of the list, where the ordinary physician is not admitted into so-called "society." In Germany and Austria doctors are well esteemed, but in Spain and Portugal physicians stand at the top of the social ladder. As regards the doctor in politics, France undoubtedly stands at the head. Medical senators and deputies are numerous and influential, and many men high in government positions are physicians, among whom may be mentioned the late foreign minister M. Combes, and M. Clemenceau. Physicians are also somewhat prominent in politics in Italy and in Spain, whereas in Belgium, Germany and Austria doctors are not conspicuous in political life, with certain notable exceptions, as, for ex-

ample, Virchow. In the English colonies medical men naturally take a prominent place in politics, and it is possible that the same may occur in the American colonies in the future. The doctor in politics in the United States is practically a negligible quantity.

We commend to our readers the detailed descriptions of the medical situation written by authoritative persons in the various countries considered. Such an inquiry represents a vast amount of patient work, and our contemporary is certainly to be congratulated upon having begun an analysis of conditions which should do much toward bringing the medical profession of the various countries into closer accord by discovering weaknesses and rectifying defects.

ELECTIVE MEDICAL STUDIES.

BEGINNING with the coming academic year, the Harvard Medical School will introduce an elective course of study into the curriculum of the fourth year. The arrangement is such that the student may have an unlimited choice of subjects, although certain advice is given as to grouping. A considerable degree of interest has been manifested as to the choice the students would make, particularly in relation to the laboratory as contrasted with the clinical courses. It was expected in certain quarters that, owing to the difficulties of practice, and the widening field for scientific research, a large number of men would select courses preparatory to later research in the various departments of so-called scientific medicine. The result, however, has not justified this expectation. The students were requested to hand in their selection on or before May 1, and a study of the returns has shown that a very large majority have chosen clinical courses and particularly those which lead to general practice, either medical or surgical, whereas the purely laboratory courses have registered very few applicants.

This tends to show that the average medical student in the latter part of his course feels the necessity of preparing himself for the practical side of his calling, now as heretofore, and we are inclined to think this is the part of wisdom. Whether or not some of these men, who have chosen clinical courses, may decide later to abandon practice and enter the laboratory, it is not to be questioned that the actual bedside experience which they may obtain by a year of study should be of the utmost value to them in shaping the problems which they may later decide to investigate. Experience shows clearly enough that those men who forthwith enter upon a laboratory career are unlikely to frequent the hospital wards later, whereas we believe that men trained on the clinical side will become future investigators in increasing number.

It is also true, as has been repeatedly pointed out in these columns and elsewhere, that the clinical student is of necessity a laboratory student as well. Every field of clinical medicine now not only offers the opportunity but makes the demand that its adherents should be versed in the methods of the laboratory. This is as it should be, and the service which the laboratories have rendered to practical medicine in this regard cannot be overestimated. On the other hand, for various obvious reasons, the laboratory student is not likely to develop on the clinical side. What we need now to cultivate, as, for example, suggested by Dr. Barker in his recent address on "Methods in Medicine" before the Massachusetts Medical Society, is a continually clearer recognition of the relationship between the problems of the laboratory and the problems of the clinic. When this is completely done, the distinctions between laboratory and clinical courses will grow less sharp, and the final step may perhaps then be taken of introducing clinical work into the laboratories by giving laboratory men at least access to clinical material.

That the experiment about to be adopted at the Harvard Medical School of elective medical courses will indicate certain tendencies of value to medical education is not to be doubted. The whole matter is a peculiarly difficult one to adjust, and a completely satisfactory outcome is not to be anticipated until an experience extending over many years has been gathered and its lessons carefully weighed. In the meantime, not only this community, but others interested in the progress of the best medical education, will follow with interest the attempt about to be made to grant a freedom to the student during his course which he naturally has immediately after graduation. Whatever the ultimate result the plan is eminently worthy of a conscientious trial.

GALL'S CONTRIBUTION TO CEREBRAL LOCALIZATION.

PAPERS concerning matters of medical history are apparently attaining a sure, if tardy, recognition in medical literature. We have no doubt the agitation now going on will lead to definite results, as exemplified, for example, by the

Medical Library and Historical Journal, now in its third volume. In the meantime, those physicians who have the taste, time and capacity for historical writing should receive the warmest encouragement from less gifted members of the profession. We have before us two contributions of this character from the pen of Dr. John E. Donley of Providence, both of which are of value. The first appeared some months ago in the *American Journal of the Medical Sciences* and discusses the early history of cerebral localization, a matter about which every one knows something, but of which few have the definite knowledge which is desirable. Dr. Donley, we think with reason, gives much credit to Gall and Spurzheim as the first to systematically attempt a localization of cerebral function. The errors into which they later fell in relation to the so-called science of phrenology has detracted much from a reputation which was deserving of better things. The second paper carries further Gall's contribution to cerebral localization, and describes a man who certainly in many respects was far in advance of his time. Dr. Donley, perhaps, puts the matter rather strongly when he says, "His psychology is arbitrary; his system, like most other systems, is inadequate, but the principle which he first laid down, the localization of function in definite parts of the brain, was true; and to-day our cerebral physiology, so far as it exists at all, is but a refined and more cultured phrenology." Opinions may legitimately differ as to Gall's exact place in the history of medicine, but it cannot be denied that his conception of cerebral function, crude as it was, was a forerunner of later studies which naturally have been of greater significance. Dr. Donley's partiality for Gall is apparent throughout his article. He has, nevertheless, brought into prominence certain facts which we are too ready to overlook in our present-day distaste for phrenology.

MEDICAL NOTES.

The Transvaal Medical Journal. — A new publication, known as the Transvaal *Medical Journal*, published under the auspices of the Transvaal Medical Society, will appear about Aug. 1, 1905. One of the objects of this new journal will be to epitomize the current medical literature of various countries.

University of Chicago Faculty Notice. — According to the *Journal of the Medical Association*, it is officially announced that Dr. Nicholas Senn has been elected professor of surgery, and Dr. Frank Billings, professor of medicine, in the University of Chicago, and will lecture before the respective classes at the university. Dr. Senn will have entire charge of the clinical teaching of surgery during the fall semester. Dr. John B. Murphy has been elected professor of surgery in Rush Medical College, and, with Dr. Arthur Dean Bevan, will have charge of the administrative details of the department of surgery and will conduct the clinical teaching of surgery during the remainder of the year.

Need of a Day of Rest. — The attention of the Woman's National Sabbath Alliance having been called to the harmful effect of overtaxing brain and nerves, resulting from incessant excitement and toil, appeals to the medical faculty for a leaflet of not more than 2,500 words demonstrating the urgent need of a weekly mental and physical rest-day as appointed of God for the moral and religious welfare of man, and offers a prize of $25 for the best essay on this subject. The experience of a Christian physician preferred.

Manuscripts with the name and address of the writers in a sealed envelope will be received until the first of November next, at the headquarters of The Alliance, Room 709, 156 Fifth Avenue, New York City. The accepted manuscript shall become the property of the Alliance, and the others will be returned when called for or accompanied by the full amount of postage needed.

Meeting of the American Medical Association. — At the coming meeting of the American Medical Association, to be held at Portland, Ore., Boston is represented by three chairmen of sections, Dr. M. H. Richardson of the Surgical Section, Dr. R. C. Cabot of the Medical Section, and Dr. John L. Morse of the Pediatric Section. The preliminary program of the Section in Medicine is so arranged that the following subjects are to be discussed in detail: nephritis, animal parasites and stomach. The writers have apparently been selected to take part in the discussion of these three general subjects whose work insures an original and progressive statement of existing facts. The papers of the Surgical Section are many of them from men of wide reputation, and the same may be said of those taking part in the Section on Pediatrics. Although the distance is great, the reduction of fares to Portland is such that many men from the East should avail themselves of this opportunity to visit the Pacific coast. We have no doubt New England will be well represented at this meeting.

"THE FIXED PERIOD." — Dr. William Osler left with his publishers a new volume of essays entitled "The Fixed Period," which will be issued early in the autumn. Mr. Howells's reflections in the "Easy Chair" are occupied with Dr. Osler's idea of the age limit of man's usefulness, an idea which, according to Mr. Howells, is not an original one, but rather a reflection of Anthony Trollope's "fantastic notion" of a "college into which men retired at sixty for a year's contemplation before a peaceful departure by chloroform." Mr. Howells cites among many examples of famous men whose great achievements were not undertaken until past forty, men like Cæsar and Dante, Michael Angelo and Petrarch, Cromwell, who gave England her first European supremacy when he was between fifty and sixty, and Grant, who made a complete failure of life through his fifteen golden years of plenty and did not win his great victories until he was well in the middle of life. Mr. Howells also suggests that if the great affairs of the world are to be turned over to the young men all the absorbing business of dances and dinners, picnics and plays, afternoon teas, sports and "the whole order of incidents which are summed up in the name of flirtation" should be relegated to the useless men of sixty and thus "give the young people a chance to show what is in them." *N. Y. Sun.*

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 21, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 22, scarlatina 20, typhoid fever 9, measles 34, tuberculosis 40, smallpox 0.

The death-rate of the reported deaths for the week ending June 21, 1905, was 17.32.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 17, 1905, was 185, against 134 the corresponding week of last year, showing an increase of 51 deaths, and making the death-rate for the week 15.70. Of this number 95 were males and 90 were females; 183 were white and 2 colored; 120 were born in the United States, 61 in foreign countries, and 4 unknown; 42 were of American parentage, 112 of foreign parentage, and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 19 cases and 5 deaths; scarlatina, 15 cases and no death; typhoid fever, 15 cases and 1 death; measles, 34 cases and 1 death; tuberculosis, 35 cases and 28 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 20, whooping cough 0, heart disease 19, bronchitis 3, and marasmus 1. There were 10 deaths from violent causes. The number of children who died under one year was 31; the number under five years, 50. The number of persons who died over sixty years of age was 34. The deaths in public institutions were 82.

Cases of cerebrospinal meningitis reported for the week were 8, the deaths, 6.

TREASURER OF THE BOSTON CHILDREN'S HOSPITAL. — It is announced that Mr. Gordon Abbott has been elected treasurer of the Boston Children's Hospital in place of the late J. Montgomery Sears.

HARVARD DENTAL SCHOOL. — It is announced that land at the corner of Longwood Avenue and Wigglesworth Street, immediately adjoining the new Harvard Medical School buildings, has been purchased for the use of the Harvard Dental School. Plans for a new building have already been drawn and further effort is being made to raise the funds still necessary for the building. The need of a new building for this department is apparent.

THE DEATH CERTIFICATE. — We are in entire accord with the following sentiments, recently published in the *Bulletin* of the Connecticut State Board of Health: "From much correspondence with those who are required by law to render certificates of death, it is very evident that some of them believe that they are obliged by law to declare the cause of death in every instance, whether they know the cause or not. Indeed, some of them have admitted holding that opinion. The unreasonableness of it is at once apparent when it is remembered that there are many deaths respecting which the attending circumstances are not known, and the previous history of the cases cannot be learned with sufficient accuracy to make a diagnosis. In such instances the law surely does not require the doctor to state what he does not know to be true. The only thing he can properly do is write 'Cause Unknown.'

"Again, when doctors give as a cause of death only symptoms of disease, such as 'dropsy,' 'exhaustion,' 'asphyxia,' 'hemorrhage,' 'tumor,' etc., which terms are utterly useless for classification and sanitary purposes, it indicates how incapable they are of appreciating the importance of the duty required of them."

NEW YORK.

MEDICAL DEGREES AT CORNELL UNIVERSITY. — The seventh annual commencement of Cornell University Medical College was held on June 14, when President Schurman conferred the degree of M.D. upon 72 graduates, eight of whom were women. Dr. George P. Simmons delivered the address to the class.

DEGREES FOR PHYSICIANS. — Among those who were honored with the degree of Doctor of Laws by Princeton University, at its one hundred and fifty-eighth annual commencement on June 14, were Dr. Andrew J. McCosh of New York, whose father was formerly President of the University, and Dr. James Curtis Hepburn of Orange, N. J., the oldest living graduate of Princeton.

NATHAN STRAUSS MILK CHARITY. — The Nathan Strauss Milk Charity was opened for its twelfth season on June 17. There are sixteen stations from which Pasteurized and modified milk are dispensed to the poor. In the preparation of milk for young infants the formulæ of Drs. Jacobi and Freeman are used, as heretofore, and this year an additional one, by Dr. L. Emmett Holt, is also employed. Two physicians look after sick infants, and, if necessary, visit them in their homes. In order to increase the facilities of his laboratory, in accordance with the increased demand for sterilized and Pasteurized milk, Mr. Strauss has purchased two additional city lots in East 32d street, on which a new building will be erected.

Miscellany.

THE MASSACHUSETTS MEDICAL SOCIETY. COUNCILLORS' MEETING.

THE annual meeting was held at the Medical Library, Boston, on Wednesday, June 14, 1905.

The meeting was called to order at 5 P. M. by the President, Dr. Arthur T. Cabot. One hundred and twenty-eight councillors indicated their presence by signing the roll.

The secretary read the names of 171 Fellows admitted since the last annual meeting, and of 37 whose deaths had been recorded.

The treasurer, Dr. Buckingham, presented his report which was accepted, showing the receipts of the Society for the year ending April 15, 1905, with the balance on hand at the beginning of the year, to have been $24,729.38, and the expenditures $13,530.33, leaving a balance of $11,199.05.

Dr. Stone, for the Committee on Membership and Finances, reported the names of five Fellows whom the committee recommended to become retired members and of six to be allowed to resign.

The report of the committee was adopted.

It was also voted, on recommendation of this committee, that $4,500 of the surplus in the treasury be distributed among the district societies.

The Committee on Publications announced that Dr. Victor C. Vaughan of Ann Arbor, Mich., has accepted the appointment as Shattuck lecturer in 1906.

Dr. Marion for the Committee on Medical Diplomas presented a printed, revised, up-to-date list of medical colleges whose diplomas it recommended should be recognized for admission to the Society.

Voted, To adopt the list presented by the Committee.

The Committee on State and National Legislation reported that they have assisted in opposing the osteopathic bill, the optometry bill, and the antivivisection bills, all of which were killed in the committees of the Legislature to they were referred.

They obtained the passage of an act regulating the sale and possession of wood alcohol.

They recommend the appointment of an auxiliary legislative committee to consist of one member from each district of the state, similar to the Auxiliary Legislative Committee of the American Medical Association.

Voted, To accept the report and that the committee be empowered to appoint the auxiliary committee referred to therein.

Dr. A. K. Stone presented the following, which was adopted:

Resolved, That the Secretary be instructed to write a letter to the Postmaster General expressing the approbation of The Massachusetts Medical Society for his courageous and praiseworthy policy in protecting the people, by refusing the use of the mails to advertising quacks and charlatans.

The following is the list of officers elected and of standing committees appointed for the ensuing year:

Arthur T. Cabot, Boston, President; Frederick H. Thompson, Fitchburg, Vice-President; Edward M. Buckingham, Boston, Treasurer; Charles W. Swan, Brookline, Corresponding Secretary; Francis W. Goss, Roxbury, Recording Secretary; Edwin H. Brigham, Brookline, Librarian.

Committee of Arrangements: Farrar Cobb, A. P. Perry, G. S. C. Badger, Lincoln Davis, L. W. Gilbert, C. C. Simmons. Committee on Publications: O. F. Wadsworth, Geo. B. Shattuck, H. L. Burrell. Committee on Membership and Finance: L. R. Stone, C. M. Green, F. W. Goss, A. Coolidge, Jr., Walter Ela. Committee to Procure Scientific Papers: C. F. Withington, R. C. Larrabee, J. B. Blake, B. P. Croft, M. D. Clarke. Committee on Ethics and Discipline: C. G. Carleton, Leonard Wheeler, Edward Cowles, J. F. A. Adams, J. A. Gage. Committee on Medical Diplomas: H. E. Marion, O. F. Rogers, H. W. Newhall. Committee on State and National Legislation: A. T. Cabot, G. G. Sears, H. P. Bowditch, S. D. Presbrey, D. D. Gilbert.

Dr. J. L. Hildreth of Cambridge was chosen Orator for the annual meeting in 1906.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JUNE 10, 1905.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever	Cerebro-spinal Menin-gitis.
New York . .	3,908,644	1,342	429	29.60	14.00	2.26	.75	4.20
Chicago . . .	1,990,780	514	134	25.28	14.39	.78	1.35	.39
Philadelphia	1,467,988	429	105	25.83	9.48	1.90	2.80	—
St. Louis . .	633,896	—	—	—	—	—	—	—
Baltimore . .	543,929	187	60	26.74	8.55	—	.53	.53
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,377	—	—	—	—	—	—	—
Milwaukee . .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	57	17	8.77	19.29	—	—	5.26
Boston . . .	617,950	188	27	21.81	11.17	1.06	—	2.66
Worcester . .	136,925	39	14	—	18.41	—	—	—
Fall River . .	119,349	27	11	14.81	18.51	—	—	—
Lowell . . .	104,402	39	13	33.33	12.82	2.56	2.56	10.25
Cambridge . .	100,998	30	7	30.00	10.00	20.00	—	—
Lynn	73,875	22	2	18.18	—	—	—	4.54
Lawrence . .	72,348	24	9	29.16	8.33	—	—	4.16
Springfield .	72,020	20	8	10.00	15.00	—	—	—
Somerville .	70,413	13	2	15.40	15.40	—	—	—
New Bedford	68,883	17	6	5.88	17.64	—	—	—
Holyoke . . .	56,588	13	5	—	7.70	—	—	—
Brockton . .	46,801	11	4	9.09	—	—	—	—
Newton . . .	39,310	8	1	—	12.50	—	—	—
Haverhill . .	39,061	4	2	50.00	—	—	—	—
Malden . . .	37,995	10	5	30.00	10.00	10.00	10.00	—
Salem	37,188	10	4	10.00	10.00	10.00	—	—
Chelsea . . .	36,499	7	0	14.30	14.30	—	—	—
Fitchburg . .	36,335	11	5	9.09	—	—	—	—
Taunton . . .	34,577	5	0	60.00	—	—	—	—
Everett . . .	30,309	8	6	25.00	—	—	—	—
North Adams	22,201	3	—	—	—	—	—	—
Quincy . . .	26,798	8	—	37.50	—	12.50	—	25.00
Gloucester .	26,121	13	3	—	—	—	—	—
Waltham . .	25,797	10	1	10.00	10.00	—	—	10.00
Brookline . .	25,276	3	—	33.33	—	—	—	—
Pittsfield .	23,870	8	—	25.00	37.50	—	—	—
Medford . .	21,956	7	3	14.30	—	—	—	—
Chicopee . .	21,692	4	2	—	50.00	—	—	—
Northampton	20,314	4	1	—	—	—	—	—
Beverly . . .	15,807	2	—	50.00	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	0	—	—	—	—	—
Adams . . .	14,745	2	1	50.00	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	5	2	20.00	—	—	—	—
Newburyport	14,478	6	0	16.67	—	—	—	—
Woburn . . .	14,315	1	—	—	100.00	—	—	—
Melrose . . .	13,819	3	0	—	—	—	—	—
Westfield . .	13,809	3	—	—	33.33	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	0	50.00	—	—	—	—
Revere . . .	13,609	1	—	100.00	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,234	0	—	—	—	—	—	—
Southbridge .	11,716	1	—	100.00	—	100.00	—	—
Watertown .	11,575	3	1	—	33.33	—	—	—
Weymouth . .	11,550	2	0	50.00	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,092; under five years of age, 890; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 796; acute lung diseases 391, consumption 385, scarlet fever 19, whooping cough 21, cerebrospinal meningitis 77, smallpox 1, erysipelas 12, puerperal fever 17, measles 41, typhoid fever 32, diarrheal diseases 138, diphtheria and croup 53.

From whooping cough, New York 9, Chicago 8, Philadelphia 1, Boston 1, Lowell 1, Haverhill 1. From scarlet fever, New York 13, Chicago, Philadelphia, Baltimore, Boston, Lawrence and Medford 1 each. From erysipelas, New York 5, Chicago 2, Philadelphia 1, Boston 2, Somerville 2. From smallpox, Chicago 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending June 3, 1905, the death-rate was 14.7. Deaths reported 4,390; acute diseases of the respiratory organs (London) 96, whooping cough 118, diphtheria 98, measles 152, smallpox 1, scarlet fever 30.

The death-rate ranged from 4.3 in Hornsey to 26.0 in Middlesbrough; London 14.7, West Ham 9.2, Brighton 9.8, Southampton 12.7, Plymouth 13.5, Bristol 15.1, Birmingham 13.5, Leicester 10.7, Nottingham 11.4, Liverpool 17.4, Wigan 13.2, Bolton 12.3, Manchester 17.2, Salford 16.2, Halifax 15.9, Bradford 17.5, Leeds 13.7, Sheffield 15.5, Hull 12.9, Newcastle-on-Tyne 19.3, Cardiff 14.8, Rhondda 12.9, Merthyr Tydfil 17.7, Smethwick 11.7.

METEOROLOGICAL RECORD.

For the week ending June 10, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S. . 4	29.98	66	79	52	82	47	64	S W	S W	7	13	O.	O.	0
M. 5	29.82	68	76	60	61	69	65	W	S W	7	10	C.	O.	0
T. . 6	29.88	62	72	52	94	81	87	N	E	20	6	R.	O.	.36
W. 7	30.03	59	53	48	90	77	84	E	E	12	13	O.	O.	.37
T. . 8	29.94	50	58	46	98	75	86	N	N E	15	3	R.	C.	.15
F. . 9	30.07	53	71	47	91	61	76	N W	S	8	8	C.	C.	0
S. . 10	30.02	70	84	56	54	55	49	S W	S W	6	9	C.	O.	0
Mean	29.95		70	52			73							.88

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Mean for the week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 17, 1905.

J. C. PRYOR, surgeon. Detached from the Museum of Hygiene and Medical School, Washington, D.C., and ordered to duty as a member of the naval and medical examining boards, Washington, D. C.

F. M. SHOOK, assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va.

G. M. OLSEN, assistant surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

J. A. GUTHRIE, surgeon. Discharged from treatment at the Naval Hospital, New York, N. Y., and granted 3 months sick leave.

R. L. SUTTON, assistant surgeon. Discharged from treatment at the Naval Hospital, New York, N. Y., and ordered to Washington, D.C., for examination for retirement and then home and wait orders.

F. M. BOGAN, passed assistant surgeon. Ordered to the Naval Hospital, Yokohama, Japan, for duty.

S. S. RODMAN, passed assistant surgeon. Detached from the "Ranger" and ordered to the "Rainbow."

G. L. WIKES, assistant surgeon. Detached from the "Solace" and ordered to the Naval Station, Cavite, P. I.

K. OHNESORG, passed assistant surgeon. Detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., June 20, and ordered home to wait orders.

RECENT DEATHS.

DR. WARREN SCHOONOVER, JR., the oldest son of Dr. Warren Schoonover, of New York, died on June 12 from acute tuberculosis. He was graduated from Bellevue Hospital Medical College, New York, in 1897, and at the time of his death was a visiting physician to the New York Post-Graduate Hospital.

DR. ARTHUR H. GARDNER of New York died on June 12. He was a native of Springfield, Mass., and was graduated from the College of Physicians and Surgeons, New York, in 1898. He then studied for two years in Europe, and on his return to New York served for two years on the house staffs of the German Hospital and the Sloane Maternity Hospital. He was one of the physicians to the Seaside Hospital of St. John's Guild.

DR. MARTIN LUTHER CHAMBERS of Port Jefferson Suffolk County, N. Y., died on June 12, at the age of sixty-two years.

BOOKS AND PAMPHLETS RECEIVED.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M. D. June 1, 1905. Philadelphia and New York: Lea Brothers & Co.

State Charities Aid Association of New York. Twelfth Annual Report of the State Charities Aid Association to the State Commission in Lunacy. Nov. 1, 1904. New York.

Original Articles.

THE FREQUENCY, PROGNOSIS AND TREATMENT OF LOBAR PNEUMONIA IN INFANTS AND CHILDREN.*

BY HENRY KOPLIK, M.D., NEW YORK.

LOBAR pneumonia in infants and children, as compared to adults, differs in a general way in its location, in that double pneumonia is rarer in children than in adults, being half as frequent. Pneumonia of the upper lobes is more frequent in children. The affection of more than one lobe is not so common in children as in adults, being half as frequent; that is, roughly speaking, 40% of adult cases show an affection of more than one lobe, whereas only 20% in children show this involvement. The right lung, according to Jürgenson and Von Ziemssen, is more frequently affected in children than in adults. In the statistics of Von Ziemssen the proportion was 126 in the right to 108 in the left lobe. I will show in another place that these statistics correspond quite accurately with my own personal cases.

The occurrence of so-called central pneumonia of a lobar nature, if we accept the statements of textbooks, would seem to be more frequent among children than adults. I cannot say, however, that, in a general way, this has been my experience. The diagnosis of central pneumonia in children, I find, is very common in practice; its substantiation is very difficult. In some epidemics central pneumonia is more common than in others. The mode of infection, in these cases, seems to determine the location of the pneumonia. Without the physical signs one should hesitate to make a diagnosis of central pneumonia.

The pneumonia of infancy and childhood as compared to that of the adult presents certain differences in its course which should impress the physician. In certain epidemics meningeal symptoms seem to predominate, especially in those cases in which the apices of either lung are involved. In other epidemics pneumonia with meningeal symptoms is not so frequent.

In children pneumonia is more apt to be followed by purulent pleurisy, especially below the age of four years, than by pleurisy with effusion, as in the adult.

Frequency. — With this introduction as to the location of pneumonia and its complications in infancy and childhood, as compared to the adult, we will take up some statistical data which will enlighten us as to the frequency of pneumonia at the different ages of infancy and childhood.

During my fifteen years of service in dispensary practice I saw 839 cases of pneumonia of all kinds and types. Of these cases 582, or 69%, occurred before the end of the first two years of life. The greatest frequency was, therefore, between the first and second years. This corresponds quite accurately with the statistics of Jurgensen who, in 312 cases of pneumonia in children, showed that 157, or 50%, occurred in the first three years of life.

As to sex, there is not, in children, that preponderance of the male sex that we find in adults, for of the 839 cases mentioned 436 occurred in male and 403 in female children, thus showing about an equal distribution of morbidity.

As compared to adults, the involvement of the various parts of either lung — speaking now essentially of lobar pneumonia — is slightly different in infants and children. Of 217 of my own personal cases of lobar pneumonia I found the following involvement of either lung:

Right lung: Upper lobe, 74 cases; middle lobe, 8 cases; lower lobe, 41 cases. Left lung: Upper lobe, 35 cases; lower lobe, 58 cases.

It will thus be seen that the right lung is mostly affected, and that the upper lobe of the right lung rather than the lower lobe of the left lung is mostly involved. This may be due to some difference in the material, which is hospital material, and mostly younger children. In Jürgensen's statistics — I quote Jürgensen because his are the most carefully worked out statistics we have on fibrinous pneumonia — the right side was involved in 49% of cases, the left side in 43%, and 7½% of cases showed involvement of both lungs. In my own cases I have not included those in which both lungs were involved, because in most of them, no autopsy being obtained, the children having recovered, they were of such an age and the course of the disease was such that it was impossible to decide whether we had true fibrinous or bronchopneumonia to deal with. In this one respect, possibly, the statistics leave something to be desired. In only two of my hospital cases could I say positively that both lungs were involved.

As to the age of incidence, my youngest case was three months old. Jürgensen's youngest observed case was four months. In the statistics of purely lobar pneumonia, as in pneumonia of all kinds, more than 50% were below two years of age. Of 82 cases observed between the years 1901 and 1904, inclusive, 48 were below five years of age.

Prognosis. — The prognosis of lobar pneumonia in infants and children will vary as to the age, severity and kind of infection, as to the amount of lung involved, and the presence or absence of complications. Generally speaking, the prognosis as to age is best below ten years. In mixed statistics given by Jürgensen of cases of lobar pneumonia, the mortality was as follows: Up to ten years, 4.8%; ten to twenty, no mortality; twenty to thirty, 6½%; between sixty and seventy 25.8%, which was the largest. In my own experience most of the deaths, in 82 cases of the past four years, were below the age of two and one-half years. Only one death in eight occurred after the fifth year. In other words, the younger the child, the greater danger. This corresponds quite accurately with the experience of Jürgensen, Von Ziemssen and Leichtenstern abroad, and American observers such as Holt and others. Therefore, any statement as to the mortality of lobar pneumonia in infants and children should

*A discussion read before the Eastern Medical Society, New York, Jan. 13, 1905.

be accompanied by a statistical statement of the age, for if we deduct the fatal cases of my 82, which were 8, we would have, above two and one-half years of age, a mortality of only one in 75 cases, whereas the actual mortality of my cases was 9.7%.

The season of the year also influences mortality. In the winter months, when the epidemic is at its height, the mortality is greatest, and in the spring and summer months it is lowest. This is due, possibly, to the great virulence of the infection.

Complications, also, influence the prognosis. In infants and children a complicating pericarditis is fatal. This is especially so in younger infants and children. At an advanced age, however, above five years, pericarditis of a pneumococcus type, if recognized in time, may be led to a favorable issue by operative interference. I have seen one such case. On the other hand, the diagnosis of pericarditis in younger children and infants is very difficult during life, perhaps in most cases impossible. It is invariably fatal. Other complications, such as otitis, pleurisy, empyema, do not materially influence the prognosis in infants and children if recognized early and treated on sound principles.

As to the prediction of the prognosis, a study of the blood has been heralded in past years as a key to the outcome of the affection. My own experience of 90 cases of fibrinous and bronchopneumonia examined with reference to leucocytes, and also with reference to leucocytosis as a key to prognosis, showed that even in the fatal cases of both forms of pneumonia in infants and children there was marked leucocytosis. The increase of leucocytes in the fibrinous form of pneumonia is especially marked at the time of crisis. In bronchopneumonic forms leucocytosis was marked at about the time of the drop of temperature. From the observations of Billings and Ewing it must be concluded that in the adult leucocytosis is a favorable sign in lobar pneumonia. It bears, however, as Heiman believes, a certain ratio, in children at least, to the amount of lung involved. In children, also, leucocytosis is more marked, that is, there is a greater number of leucocytes to the cubic millimeter of blood, than in the adult. The absence of leucocytosis is certainly a grave prognostic sign in children, but its presence, even to a high degree, does not preclude a fatal issue to the disease.

Treatment. — Lobar pneumonia, being an acute infectious disease, absolutely self-limited in its course, uninfluenced by any mode of specific treatment that we know of, it should be the duty of the physician to manage a case of lobar pneumonia in an infant or child very much on the same principles as he would manage a case of any other infectious disease, such as typhoid fever, with a certain allowance for the duration of the disease and the severity of the infection.

In lobar pneumonia, the temperature, though continuously high for days, does not exert those changes which the continuous temperature for weeks does in typhoid fever. On the other hand, the strain on the heart in lobar pneumonia for the period of infection of one week is greater than it is for the corresponding time of such a disease as typhoid fever. We refer rather to the physical strain. In typhoid fever the effect of the continuous temperature and toxemia on the heart muscle is of the slow, progressive type, whereas, in pneumonia the effect is sharper and crowded into a shorter space of time than in the disease of longer duration, and, therefore, we have fewer changes in the myocardium as such, but more strain on the vitality of the muscle tissue, due to toxemia, high temperature, and the obstruction of the circulation in the lung. In other words, in pneumonia there is really more heart strain. In typhoid fever we have more of the slow, toxemic myocarditis. The physician must be guided by the requirements of each individual case. In a younger child, on account of the high mortality and the lack of resistance to infection which we have seen, especially below two and one-half years of age, lobar pneumonia will require more active management on the part of the physician and the nurse, than when it occurs in a child above six years of age, for, as we have seen, in older children the disease is better borne than in younger children. What seems to overwhelm younger infants and children is the violence of the infection and the strain on the heart, accompanied by the temperature. The continuously high temperature of a week is less well borne by the child below three years of age than by one above it, and for that reason requires more active, judicious treatment. In an older child a temperature of 104°, to my mind, is a normal temperature of pneumonia, and would be apt to cause very little disquietude, whereas a similar temperature in a young infant or child, persisting for any length of time, would need much more active treatment because it does much greater damage to the organism. The heart needs more support to conquer the infection in the younger infant and child than in the older subject. In children in general the heart is much more fit to withstand the infection of lobar pneumonia than in the adult, for they have no constitutional or acquired taints, such as alcoholism or syphilis, to stand in the way of recovery.

The temperature in lobar pneumonia, as stated, requires treatment according to the amount of mischief it is doing. Some infants and children will bear remarkably well a temperature which other infants of the same age will not. Hydrotherapy is our sheet-anchor in the treatment of the temperature. It is only in exceptional emergencies that we resort to other measures. In applying hydrotherapy to infants and children, it must not be forgotten that the severer methods, such as the cold bath, or the Brandt bath, are second in importance to the milder measures of sponging, or the application of cold compresses wrung out of water at a temperature of 75° to 80° F. In the management of my hospital cases I have found that infants and children, as a rule, bear the cold bath very badly. They become blue,

and the reaction is delayed, as we call it, and it is very difficult in some children, particularly bottle-fed infants, to rouse them out of the depression which is caused by the application of the cold bath. I therefore prefer sponging in these cases, and apply a certain index. If an infant or child does not react from a cold sponge I apply a lukewarm sponge. In some infants and children it is impossible even to sponge, and in such cases I apply compresses, wrung out, of water at 75° to 80° F., from the neck to the umbilicus.

The heart should always be supported if necessary. Some children, especially those above five years of age, seem to bear the disease so well that very little, if any, cardiac support is called for. In children below this age some require active cardiac support, and this is met as the case demands. Alcohol and digitalis are the principal remedies, in my estimation, in supporting the heart in lobar pneumonia in infants and children. A reliable tincture of digitalis is the most convenient preparation to use. Alcohol in the form of whisky is a most valuable preparation, and much better than brandy. It should not be given in excessive doses, as it is apt to upset the stomach and, therefore, interfere with nutrition. If cyanosis is present, showing a certain amount of strain on the right ventricle and insufficiency of the left, nitroglycerin is a most useful remedy, at least in my hands, given in doses of 1–100 to 1–150 of a grain every few hours. In young children and infants a smaller dose is called for. Strychnia is a very popular drug, I find, among practitioners in the treatment of pneumonia of all kinds. Its use in infants and children is most prevalent, and some physicians advise the use of this drug to its physiological effect. I have seen cases of pneumonia treated with strychnia to such an extent that it was necessary to suspend the drug and to treat the physiological effects of the strychnia rather than the pneumonia; in other words, the child exhibited the effects of poisoning with strychnia and was suffering more from this than from the pneumonia. I would, therefore, beg that this drug be used with greater caution in the treatment of pneumonia, more especially as, from a scientific standpoint, we do not, as yet, know the exact mode of its action in this disease. In all probability it supports the respiration by a so-called stimulation of respiration. If such is the case I advise its moderate use in the treatment of this disease. It should not be used in those cases, examples of which I have repeatedly seen, of nervous children who, without its use, showed tremors and unrest due to toxemia and high temperature.

Thus far I have not spoken of the nutrition of the patient. This, I may say, is by far the most important element in the management of pneumonia in infants and children. It can be readily appreciated how important this is in young infants and children who depend almost entirely upon one form of food to resist the inroads of the disease. A child with pneumonia should be fed with a light assimilable diet, given at regular intervals. It should be carefully nursed and the condition of the tongue watched. If the tongue is dry, small quantities of water, a teaspoonful at a time, should be given at intervals of half an hour or so throughout the day, if it can be done without disturbing the patient to any excessive degree.

In managing a case of pneumonia the hourly stimulation, so much in vogue in certain quarters, is to be deprecated, as is also the disturbance of the patient for the sake of nutrition at short intervals. We should try to give the medicines and the food at about the same time so as not to disturb the patient too much. If we can make the intervals of medication and nourishment every three hours we are serving our patient the best, for rest is as important to a case of pneumonia as medication, and in some cases more so.

I have not seen much good result from the administration of oxygen, but I try to keep the sick room at an equable temperature, — 67° to 68° F., — well ventilated, so as not to be uncomfortable for the patient or attendants. I think that excessive cold is no more conducive to recovery than excessive warmth. Patients with pneumonia should have quiet and isolation as far as is possible.

The physician, in the treatment of lobar pneumonia in infants and children, should not forget that one of his principal functions is to watch for complications. If, during the course of the disease, the patient runs a very high temperature, 105° F. or above, for any length of time, the ears should be examined. If at the end of a certain period of time, the seventh, eighth, or ninth day, the temperature does not drop, we should examine the chest very carefully for effusion, and if such is found and does not disappear after a few days, a needle should be introduced to investigate its nature. If there is no effusion in the chest there is no explanation in the lung for the continuance of the temperature, the heart should be examined, and we should never lose sight of the possibility of ear complications.

There are some things which I would like to particularize about in the treatment of pneumonia in infants and children, especial in pneumonia of the lobar type. These children suffer from pain, due either to the cough or to the presence, as we all know, of pleuritic complications. We should try to control an excessive amount of coughing, and also to relieve the pain. I rarely make use of the stronger preparations of opium, such as morphine, even in older children. I content myself with codein for the relief of the cough and pain in older children, and in younger children with the camphorated tincture of opium, or the wine of opium.

In younger children tympanites is a baffling symptom. We should not hesitate to give a good calomel purge for the relief of this symptom. Tympanites will sometimes cause great distress and embarrass the heart to an excessive degree. In such cases of great tympanites 5 gr. of calomel

is not an excessive dose for a young child. In cases of ordinary tympanitic distention ½ gr. of calomel repeated after a two-hour interval suffices.

In the course of pneumonia there are attacks of collapse in which the patient becomes blue, the extremities cold, the heart weak, and the pulse rate high. Such cases are best treated by the application of warmth, both to the extremities and to the heart, and the internal administration of camphor and nitroglycerin.

In closing this paper on the frequency, prognosis and management of lobar pneumonia in infants and children I would say that its skillful management can help the patient to overcome the infection, and that its mismanagement may turn the scale against the sufferer.

ACETONURIA IN NON-DIABETIC SURGICAL CASES.

BY JOSHUA C. HUBBARD, M.D., BOSTON,
Third Assistant Visiting Surgeon, Boston City Hospital.

IN the *Annals of Surgery*, vol. xxxvi, Brewer reported a fatal case of appendicitis with acetonuria. The death in this case was ascribed to some condition of auto-intoxication of which the acetonuria was an accompanying sign. The impression received from this case is that the gravity of the prognosis was decidedly increased by this condition with its accompanying acetonuria.

Brackett, Stone and Low,[1] in the summary of a paper on aciduria (acetonuria) associated with death after anesthesia conclude "that the appearance of acetone in the urine in quantity sufficient to give the ordinary clinical reaction, is to be regarded as an indication of serious and possibly dangerous disturbance of the metabolism."

Having had attention drawn by these papers to this condition it was natural to examine the urine for acetone and diacetic acid of any patients whose convalescence deviated from the normal course. The next step was to determine as a routine the presence or absence of acetone and diacetic acid in the urine of patients entering the hospital. This was undertaken to discover if possible the importance of the condition of acid auto-intoxication, or whatever it may be, which is accompanied clinically by the presence of acetone in the urine, as a contra-indication to operation or as an element in the prognosis.

The conclusons implied or definitely stated by Brewer, Brackett, Stone and Low in their papers do not seem to be in accord with those found by this further study. From this it appears that the condition is naturally divided according to its severity into three grades, and illustrative cases are given below which occurred from March 6 to Sept. 21, 1904, in one of the three surgical services of the Boston City Hospital. No attempt has been made to report all the cases.

During the summer of 1904, the urine of 110 patients was at entrance examined for acetone and diacetic acid. In addition 35 patients were examined for acetone alone, and 5 for diacetic acid alone. Among these 9 were found where acetone was present, in 4 of which it was associated with diacetic acid. In addition to these a number of other cases with positive tests was found which were, however, excluded from this series because of a possibility that the urine might have been collected after etherization, as ether had been given immediately on entrance. These cases included accidents, fractures and emergencies where the urine that was examined might have been collected after the operation. In these cases, therefore, it could not be denied that the acetone present was not due to the anesthesia as it has been shown that a distinct amount of acetone may be found in the urine after narcosis. A brief résumé of the cases follows in which acetone alone or with diacetic acid was found by routine examination.

CASE I. *Tubercular adenitis of the neck.* — June 3, 1904, Helen D., sixteen years. For nine years, a swelling on both sides of the neck below the angle of the jaw. June 6. Dissection of neck and removal of glands. June 21. Discharged. Left side of neck healed. Small sinus on right. Urine examination, June 4, day after entrance: albumin and sugar absent, acetone present, diacetic acid absent.

CASE II. *Cerebral concussion.* — June 6, 1904. Herbert F., seven years. While playing yesterday was run into by another boy. Fell, striking ground with head. No head symptoms. To-day complained of severe abdominal pain. Because of this pain, some drowsiness and incoherence, brought to hospital. Examination showed the condition to be principally mental. Drowsy and unable to think clearly. Vomited once or twice after entrance. Discharged on June 8. Urine examination June 7, day after entrance: no albumin or sugar, slight amount acetone present, diacetic acid absent.

CASE III. *Appendix abscess.* — June 7, 1904. Sarah E. B., fifty years. For two and one-half years, twenty-four years ago, passed considerable pus in urine. Peritonitis after childbirth ten years ago. Stone removed from bladder at that time. Had malaria during period when twenty-six to thirty-four years old. Feeling mean for six weeks. Gave up work three days ago. Considerable pain in right side of abdomen for past week, worse when lying down. Examination: Some spasm and tenderness between ribs and ilium on right and in region of gall bladder. Dullness and especial tenderness over a mass felt just below the costal margin. June 17. Abscess cavity running from perinephritic space downward, outward, and forward to appendix; region drained. Aug. 4. Discharged to Convalescent Home with a sinus. Urine on June 8, day after entrance, contained both acetone and diacetic acid but no albumin or sugar.

CASE IV. *Chronic appendicitis and inguinal hernia.* June 10, 1904. William L. B., twenty-six years. History of several attacks of abdominal pain. This morning general abdominal discomfort and cramps. Pain increased and became localized over the appendix region. Several movements of the bowels. Has slight inguinal hernia. June 18. Interval operation for appendicitis and Bassini operation on the hernia. July 11. Discharged. Urine, June 11, day after entrance; no albumin, sugar or diacetic acid; acetone present.

CASE V. *Cerebral concussion.* — June 15, 1904. James J. M., ten years. Last night fell from wagon to ground, striking head and abdomen. Came to hospital

[1] BOSTON MEDICAL AND SURGICAL JOURNAL, July 7, 1904.

because of abdominal pain. Examination showed slight abrasion of forehead and slight abdominal spasm. Slight mental confusion for twelve hours after entrance. June 20. Discharged. June 17. Urine examination: No albumin, sugar or diacetic acid; acetone present. June 19, no acetone or diacetic acid.

Case VI. *Fracture of humerus and clavicle.* — June 17, 1904. Katie B., eight years. Fractures treated at the Relief Station. Vomited large amounts of material containing blood several times. June 18. Vomited several times during the night. Transferred to the main hospital. Discharged June 25. Urine examination, June 19: No albumin, sugar; acetone and diacetic acid present..

Case VII. *Fracture of pelvis.* — June 8, 1904. Salva P., adult, male. Fell from wagon and run over by another. Treated at the Relief Station for fractured pelvis. Transferred to the main hospital June 20. Discharged July 18. June 21, day after entrance, urine contained acetone but no albumin, sugar or diacetic acid.

Case VIII. *Salpingitis?* June 25, 1904. Gladys C., twenty-one years. For one month occasional slight pain in right lower abdomen. Four days ago after cold bath pain over whole abdomen finally settling in right lower abdomen. June 29, discharged without any operation. Urine of June 27 contained both acetone and diacetic acid but no albumin or sugar.

Case IX. *Fracture both bones of leg.* — July 1, 1904. Kate C. Twenty-seven years. Fracture of both bones of leg. July 21. Discharged in plaster bandage. Union not quite firm. Urine of July 2, day after entrance, contained both acetone and diacetic acid, but no albumin or sugar.

Not one of these cases ran a course which was not perfectly consistent with the injury or the disease from which he was suffering, and in not one was it possible to detect any abnormality in the convalescence which could be ascribed in any way to the acetonuria. If then 9 cases of acetonuria are found in 145, it seems that the frequency of this condition is much greater than at first supposed, and that in many cases the condition needs simply to be sought to be found.

During the convalescence of some cases, because of signs or symptoms, the urine was examined for acetone or diacetic acid to furnish if possible, an explanation for the irregularity of the convalescence. A brief report of these cases follows:

Case I. *Fracture of femur.* — April 21, 1904. Leonard N., four years. Was in the hospital in August, 1903, for fracture of left femur. Discharged in October. This time fracture of the same femur. Put up with ether. Convalescence uneventful till June 18, when boy became somewhat apathetic and lost his appetite. Prodromata of measles developed and the rash appeared. The leg was moved at this time with freedom. Note on June 20, that the boy has had marked odor of acetone in breath for past five or six days. Has been drowsy, not unconscious at any time. No vomiting. Urine scanty, high colored. Fracture has entirely united. Boy was discharged at mother's request. Urine examinations, May 20: No albumin, sugar, acetone, or diacetic acid. June 19. Albumin and sugar absent; acetone and diacetic acid present.

Case II. *Appendicitis. Diffuse peritonitis.* — May 10, 1904. Margaret F., eleven years. Pain in epigastrium becoming localized over McBerney's point. Later pressure over left iliac region excited pain at McBurney's point. Nausea and vomiting. Distress in right iliac region on extension of legs. May 11. Appendix removed and abdomen wicked. May 23. Secondary abscess opened through the existing sinus. Nothing of especial note in the convalescence except that the child was fairly sick. Urine examination on June 17 showed no albumin, sugar, acetone, or diacetic acid. Shortly after this the patient began to vomit, and on June 30, the urine examination was as follows: Trace albumin, some small round cells, large round cells and squamous cells, rare hyaline and finely granular casts, normal and abnormal blood, numerous polynuclear leucocytes; acetone or diacetic acid present. Father, who was a physician, took the child home on June 30, at which time the abdominal sinus had closed.

In spite of the evidences in this case of irritation in the kidney, I have included it in this series as the symptoms are far more likely to be due to the acid intoxication than to the irritation.

Case III. *Inguinal hernia.* — July 25, 1904. Dina K., thirty-eight years. Right inguinal hernia. July 27. Radical operation performed. Aug. 8. Wound healed. Aug. 18. Discharged. During convalescence there had been some vomiting and patient had been hysterical. Aug. 2. Acetone and diacetic acid both present in the urine. Both present in urines examined on Aug. 3, 4, 5, 6, 7, and both absent on Aug. 8.

Case IV. *Fracture of femur.* — March 17, 1904. William E. D., eight years. On entrance etherized, and thigh put up in splints. The clinical notes on the case are not satisfactory. On May 22, very slight trace albumin and acetone in small amounts were present in the urine and diacetic acid was absent. May 25. Acetone still present. May 29. Slight trace of albumin; acetone and diacetic acid both absent. May 21 there were evidences of follicular tonsillitis with fever. May 17, about the ward on crutches. Discharged May 30.

Case V. *Epigastric hernia.* — Sept. 9, 1904. Margaret A. C., fifty years. One year ago began to have stomach trouble, vomited once or twice a month, nauseated much more frequently. No hematemesis. Never jaundiced. Bowels regular, never any bloody movements. Three years ago began to have pain in epigastrium, relieved by vomiting. Last two months vomiting three or four times a week. Loss in weight of 15 pounds in two months. Sept. 23. Exploratory laparotomy. Small epigastric hernia found and numerous adhesions between the omentum and the abdominal wall. Sept. 25. Some nausea and vomiting. Urine examination, Sept. 27: No albumin, sugar, or diacetic acid; acetone present. Sept. 28. Acetone absent. Sept. 29. Less nausea and vomiting. Oct. 17. Discharged.

It is evident that the convalescence of these patients continued along an even course, although perhaps disturbed momentarily by the acetonuria. The condition yielded readily to the treatment with bicarbonate of soda and the patients were eventually none the worse for the disturbance. What the course of these patients would have been had the condition gone unrecognized is, of course, unknown. Had it been a steadily failing one there would have been a large number of unaccountable deaths, too large to have tallied with the experience of operators prior to the recognition of acetonuria.

In a few cases where symptoms, of themselves alarming, developed during convalescence and acetonuria was found, the end was death.

CASE I. *Acute appendicitis.* — May 16, 1904. Oscar M., nine years. Not feeling well for three days. Two days ago vomiting began and has since continued. Feverish and bowels sore. Examination: Tenderness over McBurney's point with moderate spasm over the entire right side and dullness everywhere. Immediate operation. Intestines collapsed and of grayish color, suggesting those of cadaver. Appendix retrocecal, slightly injected and swollen. Removed. As condition of appendix not thought to account for the alarming condition of the patient the abdomen was thoroughly explored, but nothing abnormal was found. Abdomen filled with salt solution and wicked. Patient stimulated. May 18. Vomited after operation and yesterday. Sweet odor to breath. May 22. Still occasional vomiting. May 28. Steadily failing. Pulse rising. Temperature irregularly elevated. Unable to retain anything on stomach. Died. Urine examination, May 19: No albumin or sugar; acetone and diacetic acid both present and both persisted till death.

CASE II. *Acute osteomyelitis.* — April 4, 1904. Grace M. S., twelve years. Has not walked for a week because of pain in right knee. Four days ago leg and knee became swollen. Night cries, anorexia and elevated temperature for one week. Examination showed evidences of acute osteomyelitis of the lower end of the right femur which was operated upon and pus found in the medullary cavity. Following this various foci developed and the bones were trephined as follows: April 6. Right femur, pus found. April 10, left humerus, pus found. The left femur, no pus. April 13. Left fibula, pus found. April 25. Abscess of right parotid opened. After this the convalescence seemed to be going along satisfactorily, the temperature and the pulse both falling. The child then began to vomit and acetone appeared in the urine. Rectal feeding became necessary. Vomiting persisted and on May 20, during a severe attack of vomiting, patient collapsed and died. Urine examination, May 9: Albumin and sugar absent; acetone present. From this time acetone and diacetic acid were present on every examination, May 12, 13, 14, 15, 16, 17, 18 and 19.

In the above cases some condition changed the course of the convalescence from a normal one to a critical one and finally to a fatal ending. These cases differ from others of the same disease by the presence of acetonuria, and on this, therefore, rests the blame for the deaths; whether justly or not, remains to be proved. Judging from these last cases, the finding of acetone alone or with diacetic acid in the urine seems, in the presence of symptoms of themselves alarming, to increase the gravity of the prognosis.

From a perusal of the above cases with those reported by Brewer, Brackett, Stone and Low, it seems correct to draw the following conclusions:

(1) Acetonuria is of more frequent occurrence than thought for.

(2) Its presence without symptoms has no effect on operative treatment or prognosis.

(3) Its presence with moderate symptoms is of only slight importance.

(4) Its presence with severe symptoms is of the gravest prognostic value.

Whether the severity of the symptoms on further study will be found to vary in direct proportion to the amount of acetone or diacetic acid present in the urine, I am in no position to determine.

An analysis of these cases as to age shows that acetonuria occurs more frequently in the young. By decades, the cases fall as follows: To ten years, 5 cases; ten to twenty years, 4 cases; twenty to thirty years, 3 cases; thirty to forty years, 1 case; fifty to sixty years, 2 cases. It is certainly suggestive that the two fatal cases were twelve and nine years old, and Brewer's case was twelve years old.

Brewer summarized the symptoms in his case as follows: "There suddenly occurred acute delirium, frightful hallucinations, a failure to appreciate his surroundings or recognize those about him, somnolence, coma and death within thirty-two hours from the first untoward symptom." In the cases which I have reported, this symptom complex is met far less frequently than one characterized by vomiting. As all of the cases have occurred in hospital practice, it is possible that an initial change in the mental condition might have been overlooked. The most marked symptom, however, was the vomiting occurring without any apparent cause. The odor in the breath of acetone has been noted several times. By combining all the cases, the frequency of these prominent symptoms is found to be as follows: Vomiting: Brackett, etc., 7 cases; Boston City Hospital, 5 cases. Apathy: Brackett, etc., 1 case; Boston City Hospital, 1 case (Brewer's case). Odor of acetone in breath: Brackett, etc., 7 cases; Boston City Hospital, 2 cases (Brewer's case).

For the discussion of the nature of the condition which is accompanied by acetone and diacetic acid in the urine the reader is referred to the papers by Brewer and Brackett, Stone and Low.

The treatment mentioned several times in the reports of the cases has been the administration of bicarbonate of soda usually in doses of 30 gr. three times a day or every four hours.

A CASE OF TOXIC DEGENERATION OF THE LOWER NEURONS.*

BY JOHN E. DONLEY, M.D., PROVIDENCE.

IT is my wish in the present paper, first, to report a case of toxic degeneration of the lower spinal neurons; and, secondly, to discuss briefly some pathological and clinical resemblances between this condition on the one hand, and acute poliomyelitis, peripheral neuritis and Landry's paralysis on the other.

Miss G., age thirty, white, single, by occupation a housemaid, came under observation, complaining of weakness in the hands, forearms, legs and feet. Her family history is not significant, nor is her personal history up to an attack of what she calls "grippe," three months ago, from which she suffered for about two weeks, and from which she dates her present difficulties. About ten days after recovery from this attack she noticed that her hands were rapidly becoming weak and that she was unable to use them as formerly, on account of loss of power, more especially in those movements requiring delicate co-ordination, such, for example, as threading a needle.

About the same time she observed that her feet also

*Read before the Providence Medical Society, February 1905.

were weak, although at no time has she been incapacitated from walking. There has never been any tingling, numbness, or other paresthesia, but cramp-like pains have occurred in the arms somewhat frequently.

Upon examination she was a woman of medium stature and, in general, of good development. Her pupils were equal, reacted normally to light, including the consensual reflex, and in accommodation. There were no cranial nerve anomalies. The triceps and biceps jerks were normal; patellar reactions equal and slightly exaggerated. The Achilles jerk, front tap, plantar reflex or ankle clonus could not be elicited. Objective sensory changes to touch, pain and temperature were not demonstrable, but the calf muscles were rather tender upon pressure. There had never been any sphincter trouble. The interossei, thenar and hypothenar muscles of each hand were atrophied, the wasting being about equal on the two sides; there was also some wasting and weakness of the extensors of the fingers and wrists, a tendency to drop wrist being present. In the feet the small muscles were atrophied, as were also the anterior tibial groups.

Upon electrical examination the interossei of the hands, the thenar and hypothenar muscles were unresponsive to strong faradism, and the extensors of the forearm, although contracting, required a stronger current than did the flexors. In the feet and legs the atrophied muscles contracted upon stimulation, requiring, however, a stronger current than normally. The reactions of the muscles to galvanism were not taken. Under continued treatment for seven weeks, the muscular atrophy and weakness improved very materially, and when last seen the patient looked and considered herself to be distinctly better. She was lost sight of before the ultimate result of her disease could be observed.

In a word, the important points in this case are as follows: shortly after an acute febrile attack the patient rapidly developed weakness and atrophy in the interossei, thenar and hypothenar muscles of the hands, the extensors of the wrist and fingers and the small muscles of the feet, together with the anterior tibial groups. There were no objective sensory changes and no subjective sensory symptoms, except tenderness upon pressure of the calf muscles, and cramplike pains in the arms. The condition after reaching its maximum of intensity constantly improved and when the patient was last seen this improvement was still in progress.

Writing in 1902, Dr. Stanley Barnes [1] described a group of cases whose clinical features had not hitherto been recorded, and to these he gave the name of toxic degeneration of the lower neurons. Somewhat later Williamson [2] published the notes of a similar case, and my own case would seem to belong in the same category. In the discussion of his cases, of which there were seven, Dr. Barnes remarks, "At the stage when they came under observation the cases recorded above all showed a well-marked atrophy of the small muscles of the hands, together with weakness of the extensors of the wrist and of the flexors of the ankle. The atrophy of the small muscles of the hand in five of the cases reached a severe degree and especially in case No. III where only the slightest contractions were possible in the interossei, lumbricales, thenar, or hypothenar muscles. In the more severe cases there was no reaction to the faradic current in the hand muscles, and diminished reaction in the extensor group of the forearms and in the flexor group of the ankle. In other words, there was an atrophic paralysis of the peripheral type, a paralysis in which the most distal muscles had suffered severely and in which the proximal muscles were only slightly or not at all affected. In none of the cases did the muscles particularly affected correspond to particular peripheral nerves. The distribution of atrophy corresponded rather to the segments of the cord, the first dorsal supply being especially picked out."

The truth of this last statement may be seen by reference to the case which I am reporting. It will be observed that the muscles involved are supplied by the median, musculo-spiral and ulnar nerves; but that while the distal muscles are paralyzed and atrophic, the proximal muscles supplied by these same nerves, as well as those supplied by the circumflex and musculo-cutaneous nerves, have escaped. The paralysis is of the spinal segment type, the lowest cervical and first thoracic segments, which supply the muscles of the hands, being chiefly involved.

The resemblance of these cases to peripheral neuritis is striking. There is the comparatively rapid onset, the symmetrical distribution, the tingling and numbness, the tenderness of the muscles and nerves upon pressure and the distinct muscular atrophy. The latter, however, is not in the distribution of indjvidual peripheral nerves, but in that of spinal segments, and in this regard we observe the similarity of the disease to acute and sub-acute poliomyelitis; but here again the symmetrical distribution of the paralysis in both the upper and lower limbs and the distinct signs of peripheral nerve involvement, evidenced by the muscular tenderness, obviously exclude these cases from the class of uncomplicated poliomyelitis. Furthermore, the continuous improvement of all the affected muscles is proof in the same direction. If we reflect upon the fact that the symptom complex is consequent upon some febrile reaction, that there are signs not only of implication of the peripheral nerves, but also of the cells of the spinal cord, and that in the course of the affection there is a steady although slow improvement, I think we will be impelled to conclude that the whole neuron — cell and fiber — takes part in the morbid process, and indeed of this, Dr. Barnes furnishes pathological proof in one case which he examined microscopically. We have, therefore, in toxic degeneration of the lower neurones, a symptom complex which would seem to hold a place intermediate between anterior poliomyelitis on the one side and peripheral neuritis and Landry's acute ascending paralysis on the other. The disease overlaps upon either side, and the question therefore very naturally suggests itself, Are these symptom groups — these diseases as we are accustomed to regard them — really as distinct as their separate description would lead us to believe? Are we not, perhaps, dealing with a mor-

[1] Stanley Barnes: Brain, vol. xxv, p. 479.
[2] Williamson: Brain, vol. xxvi, p. 206.

bid entity, essentially one, but giving rise to different symptoms according to the precise anatomical location and varying intensity of the process. A very general consensus of opinion regards the neuron as an anatomical, functional and nutritional unit; and if this is so, there would appear to be no good reason for regarding it as other than a pathological unit also. The proof, however, must come from pathology.

In the group of cases which we are considering, the cause of the degenerative change in the nervous elements is a toxin produced by bacteria in the body, or a poison introduced from without. This, circulating in the blood and vitiating the nutritive plasma which bathes the nervous tissues, must of necessity come in contact with the whole neuron; and while anatomical conditions may vary the time and degree of this contact, the general truth remains none the less true. The difficulty arises in explaining how it is, and why it is, that at one time the axon or segments of it, and at another time the cell body, and at still another the whole neuron appears to be chiefly affected.

From the pathological side we may first consider alcoholic multiple neuritis. There are few who maintain at the present time that alcoholic neuritis is an inflammatory condition of the nerves. It is essentially a degeneration of nerve fibers, as is plainly evident from the study of acute cases such as those of Sydney Cole,[3] Howard Tooth and Sidney Martin. Proliferation of neurilemma nuclei and connective tissue cells, emigration of leucocytes, and formation of new fibrous tissue do indeed occur, but these are certainly secondary in point of time, and the primary process is one of fiber degeneration. Not only are the fibers as such affected, but the anterior horn cells undergo a typical Nissl degeneration which has been described and pictured by Achard and Soupault, Ballet and Dutil, Dejerine and Thomas, Marinesco, Larkin and Jelliffe, Mott, Wright and Orange, and others.

The pathological condition, therefore, in alcoholic and other forms of toxic peripheral neuritis is not a neuritis at all, and is not strictly limited to the peripheral nerve fiber. It is a degeneration affecting the whole neuron — both cell and fiber — although different degrees of involvement of each must be conceded.

The same remarks apply with equal force to acute anterior poliomyelitis of infants and adults. In a case of this disease recently reported by Dr. F. W. Mott,[4] the spinal cord, peripheral nerves and muscles were examined after the fatal termination sixteen days from the onset. The patient was a child, aged five months. Post-mortem the degenerative process had implicated both the peripheral nerves and the cells of the spinal cord, and furthermore had produced acute fatty changes in the muscles.

More interesting still than poliomyelitis, peripheral neuritis or toxic degeneration of the lower neurons is Landry's ascending paralysis; for in the microscopic findings in this disease we obtain important evidence as to the pathological unity of the neuron. Excluding the very rare and constantly diminishing cases in which no pathological changes are to be found, and considering only those in which definite post-mortem evidence of the disease exists, we find according to Farquhar Buzzard,[5] that a certain number have been remarkable only for the signs of degeneration in the peripheral nerves, and on account of the absence or scarcity of cell changes in the cord, have been held to prove the peripheral origin of the disease. A majority of recent cases, however, have shown significant changes in the nerve cells of the cord, and especially in those of the anterior horns, and this condition has often been associated with early myelin degeneration, both in the peripheral nerves and in the white matter of the central nervous system. The intensity of the process as it affects the cellular elements has been of all degrees, and has varied from a condition which could hardly be regarded as abnormal to one which has closely resembled an acute anterior poliomyelitis. Because of these pathological findings, Buzzard regards the intoxication as affecting all parts of the central and peripheral nervous system, but with an intensity which varies with the susceptibility of the different neurons to the poison, and with the energy and duration of its activity.

Additional confirmation of my contention that these different clinical types are in reality but varied aspects of one fundamental disease process, is derived from those cases, not uncommon in the literature, where two or more diseases are present together or follow upon one another in which latter case we call them complications of the primary difficulty. Commenting upon the pathological investigation of one of his fatal cases of toxic degeneration of the lower neurons, Stanley Barnes observes, "There can be little doubt that this patient succumbed to the third attack of a toxemia which caused degeneration of the lower neurons. I would again emphasize the remarkable similarity between the terminal attack and the condition seen in Landry's paralysis. If this patient had come into the hospital for the first time during the final acute attack, and had shown no signs of previous nervous disease, there can be no doubt that a diagnosis of Landry's paralysis would have been made without hesitation."

After describing a case of puerperal polyneuritis in which the primary symptoms were followed by signs of spinal cord involvement, and in which both peripheral nerves and spinal cord cells were found degenerated post-mortem, Dr. James Stewart[6] writes as follows: "The clinical course makes it highly probable that we had to deal, first with a neuritis, and later with a localized myelitis (poliomyelitis). The symptoms were for several months those of a neuritis rather than a poliomyelitis. In fact, at no time were there sufficiently distinctive symptoms present to enable

[3] Cole: Brain, vol. xxv, p. 326.
[4] Mott: Archives of Neurology, London County Asylum, vol. i.
[5] Buzzard: Brain, vol. xxvi, p. 94.
[6] Stewart: Phila. Med. Jour., May, 1901.

one to say definitely that the spinal cord was involved. It was only the gradual ascending character of the paralysis (Landry type) that some three or four months before death gave a clew as to a probable spinal involvement. The development of the symptoms and the appearances met with in the nerves make it clear that we had to do in the first place with a parenchymatous neuritis. The prolonged primary stage of numbness in all the four extremities, together with a prolonged period of simple weakness of the peripheral muscles, pointing to a distal parenchymatous multiple neuritis as the primary lesion."

It is cases such as these, cases which do not fit under the description of any of the well-defined clinical groups, which suggest the underlying common relation of all.

An analogy may be drawn from hysteria and neurasthenia. While it is comparatively easy to separate precisely those cases at the extreme ends of the series, nevertheless as we approach the center, such a distinction becomes oftentimes practically impossible, and we are driven to the necessity of speaking of hystero-neurasthenia. For similar reasons, after reviewing the clinical and pathological findings in the cases under description, I think the following conclusions have at least a tentative justification:

First: Toxic degeneration of the lower neurons, acute anterior poliomyelitis, peripheral neuritis and Landry's paralysis are essentially degenerative conditions of nervous elements.

Second: The exciting cause of this degeneration is a toxemia, which may be the result of bacteria, auto-toxins, or poisons introduced from without; and,.

Third: The whole neuron, both cell and fiber, suffers in every case, the clinical symptoms, however, depending upon the intensity, the duration, and the anatomical situation of the morbid process.

Clinical Department.

FROM THE WELD WARD FOR DISEASES OF THE SKIN. MASSACHUSETTS GENERAL HOSPITAL.

Service of Charles J. White, M.D.

BY FREDERICK S. BURNS, M.D.,

Assistant Physician for Diseases of the Skin.

DERMATITIS VENENATA FROM MOSQUITOES.

Mary H., age twenty-four. Born in Ireland, a recent immigrant.

Three weeks after arrival in this country the patient went into domestic service in a neighboring suburban town, where mosquitoes abounded. After being bitten on the exposed portions of the skin, these parts swelled and became so inflamed that relief was sought at the hospital.

The patient was a healthy, well-developed Irish girl. On the parts generally that had been bitten the skin was highly erythematous, swollen and covered with numerous large wheals, many of which were distinctly vesicular and bullous. Swelling of the eyelids was sufficiently intense to close the eyes. There was slight fever and malaise.

Under local applications of oxide of zinc and lime water, and free saline catharsis, the process subsided, and in a week's time the patient was discharged well.

Arrived recently from a portion of Europe where mosquitoes are not indigenous, and therefore unaccustomed to their bites, the patient experienced the effect of an entirely new poison in her skin, which, combined with the contributing influences of a steerage passage across the Atlantic, explained the unusual severity of the cutaneous reaction.

[J. C. White (Journ. Cutaneous Dis., Oct., 1890, Dermat. venenata, 1887) some years ago called attention to this variety of dermatosis, and cited numerous instances in his experience of the extraordinary effect of mosquitoes and certain vegetable poisons on the skins of immigrants who, before arriving in this country, had never been exposed to these irritants.]

ERYTHEMA MULTIFORME PSORIASIS.

Margaret W., age twenty, laundress. Born in Ireland. Family history unimportant. Previous health of patient always good.

The present illness began three days ago, when the ankles swelled and became painful in the evening. The following morning both legs were swollen, reddened and painful. The lesions on the face were noticed two days ago.

On entrance to the ward both legs were edematous and pitted on pressure. Over the surface of the legs generally, and most numerous anteriorly, were red, cent to half dollar sized, deeply seated nodules, decidedly painful on pressure. The backs of the hands presented a few, bright red, large bean-sized papules with several peripherally-situated vesicles. The bridge of the nose also showed two papulo-vesicular lesions.

During the first five days in the hospital there were evening exacerbations of temperature, subsiding to normal on the sixth day. The general physical examination of the patient was quite negative.

In addition to the acute erythematous affection, there was a generalized, sparsely disseminated papulo-squamous psoriasis of six months' duration.

RAYNAUD'S DISEASE.

Tilly H., age forty-four. Born in Austria. General family and personal history unimportant.

The present illness began four years ago, when the fingers of both hands began gradually to get blue and cold, especially in winter, and to be accompanied by a burning pain. The feet have never been affected. The ears seem sensitive at times.

Both hands felt decidedly cool, getting colder towards the ends of the fingers. The skin of the fingers was waxy, pinkish-white in hue, with a marked atrophic appearance. The finger-nails were either entirely atrophied or partially so, with thickening and transverse striation. At the tip of the second finger of the left hand was an open, superficial, sluggish ulceration. The radial pulse was regular, small and of poor tension. (78 m Hg.) Nerve reactions were normal. Under tonic treatment the general condition of the patient improved considerably and the local affection somewhat.

PEMPHIGUS FOLIACEUS.

S. M., infant, female, ten days old. Born in Dorchester.

Family history. — Infant's mother has two older children, both of whom have always been well. No history of miscarriages in the mother, nor of venereal nor cutaneous disease in either parent.

The physician who attended the birth of the infant reported that it was born healthy on Aug. 14, 1904.

The affection for which the infant was brought to the hospital began on the ninth day of life, appearing first on the left arm as vesicles and rapidly becoming a generalized bullous eruption. The bullæ had flaccid walls which were easily ruptured, either spontaneously or from contact with clothing.

On entrance to the hospital on Aug. 25, the following description of the case was recorded:

"Female infant, well developed and nourished. The hairy portion of the scalp is exempt. The epidermis of the face and neck is macerated and exfoliating in large sodden shreds, leaving beneath a denuded surface of a deep, brawny, red hue. The eyelids are intensely swollen, closing the eyes, and from between the lids there exudes a little sero-purulent fluid. Almost the entire surface of the arms is denuded of epidermis by maceration. The skin of the hands is intact, but even there it appears sodden. A large portion of the trunk and legs is similarly affected, presenting large plaques of macerated, exfoliating epidermis. The feet are relatively unaffected, like the hands.

When the infant was first seen, the possibility of the condition having resulted from a burn by immersion in hot water was considered. It could not be conceived, however, how immersion could have taken place and yet leave the scalp, hands and feet exempt; furthermore, the affection was said to have begun with an eruption of vesicles on one arm.

Aug. 26, the day after entrance, the appearance of the skin was an aggravated picture of the preceding day. Added to the deep-red color of skin there was a marked cyanotic hue. The general condition was decidedly feebler. Death occurred on Aug. 27.

The treatment of the case consisted in the application of carron oil externally and in the use of brandy and salt solution internally. Unfortunately permission for autopsy was not granted.

The etiology of this rare affection is yet obscure. It is usually classed among the rather broad group of pemphigoid affections, occupying an intermediate position between the bullous type and pemphigus vegetans. As yet, pathological examination of the skin has shown little more than an edema between the epidermis and corium.

LYMPHANGIOMA CIRCUMSCRIPTUM.

S. H., female, fifty-one years old. Born in England and resides in Boston. Family history unimportant in relation to the present affection.

The patient's general health had always been good until four years ago, when she was operated upon for a supposed abdominal cancer. At the operation a tumor mass was found infiltrating the greater peritoneal cavity; the tumor was considered inoperable and the patient was subsequently told that she had about a year, more or less, to live,

On Christmas Day, 1902, the patient was taken with a severe abdominal pain, radiating across the umbilical region, which subsided in a few hours after application of hot water bottles. The following day an eruption was noticed over the region where the heat had been applied, and was thought to have been caused by it. At first appearing as a diffuse, erythematous, palm-sized plaque about the umbilicus, the area rapidly doubled in size, and became covered with numerous vesicles.

During the following year and a half, there was no apparent change in the appearance of the eruption. Suddenly, one day, the skin of the abdomen was found to be wet, the moisture exuding from one of the vesicles on the affected region. The fluid at first exuded intermittently, but soon the flow became constant and always from the same point. Gradually increasing in amount, the fluid some days soaked three to four bath towels. At night in the recumbent position the flow practically ceased. The general condition of the patient during all this time was excellent.

On the entrance of the patient to the Massachusetts General Hospital in July, 1904, the following notes were recorded: "The abdomen is moderately prominent. In the left lumbar region is dullness, not changed by position, beginning in the umbilical region and extending to the extreme left. On palpation a firm mass is felt in the left lumbar region, not well defined, but corresponds approximately to the area of dullness. The skin of the abdomen is thrown into folds and shows prominent liniæ albæ. There is general pigmentation of the skin in this region. About the umbilical region is an area twice the size of the palm, of a violaceous-red hue, and thickly covered with discrete and confluent vesicles, the latter having flaccid walls and their contents easily removed by pressure. From a large vesicle at the right border, a serous fluid continually exudes, the orifice of exit is very minute and cannot be detected with the smallest filiform probe.

The clinical diagnosis of lymphangioma was made, which was corroborated by a biopsie removal for pathological examination.

It seems probable that the lymphangiomatous proliferation, starting from the mesenteric lymphatics, simulated a malignant tumor, which, four years ago when the abdomen was opened, was thought to be cancerous. The fact that the patient remained in excellent health in spite of the increase of the growth and the lapse of time disproves any supposition of malignancy.

During the first few weeks in the hospital the minute, oozing point was frequently cauterized, however, with only temporary cessation of the flow of lymph. Finally more extensive cauterization with the paquelin cautery was essayed, and the area was deeply seared with eight to ten punctures half an inch in depth. This finally successfully stopped the exudation. A relapse of the condition is, however, probably to be expected.

TROPHIC ULCER.

Julia C., aged, sixty-three. Irish. Family and past history unimportant.

The cutaneous affection began three years ago at the center of the left palm, as a bean-size nodule which was very tender on pressure. The nodule increased slowly in size for a year until it attained the size of a cent. Up to this time the surface remained unbroken, but continued to be very painful. The lesion was then cauterized in Lynn, and from thenceforth became an ulcer, which progressively enlarged peripherally. When the ulceration had lasted two months and had reached the size of a dollar, a skin graft was attempted, but without success. For the following six months various ointments and powders were used, all without success. Finally the x-rays were tried and were applied five minutes every day for twenty days. The hand, however, grew steadily worse. Later another skin graft was attempted, again without success.

On entrance to the hospital the hand presented a circumscribed area one and a half inches in diameter, ulcerative and crusting. The fingers were smooth and shiny, and were contracted midway between extension and flexion. Sensation was absent in the first and second phalanges of the fourth finger, diminished in the first phalanx of the second finger. On removal of the crust a purulent surface was exposed. Albumin

and sugar were absent in the urine. In five weeks from the time of entrance to the hospital the patient was discharged with the ulcer entirely healed. External medication consisted in the use of a stimulating lotion of tartrate of iron and potassium, nosophen powder and a salve of boracic and salicylic acids. Internally iron was given in the form of Blaud's pills.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D.,
AND
JOHN LOVETT MORSE, M.D.

(Concluded from No. 25, p. 731.)

SUGGESTIONS CONCERNING THE ACTIONS OF ALKALIES AND THEIR INDICATIONS IN INFANT FEEDING.[3]

ALKALIES have been added to cows' milk in infant feeding for a long time under the impression that they acted as antacids and, by neutralizing the acidity of cows' milk, made it conform to the supposed alkalinity of breast milk. Breast milk, however, has been proved to be faintly acid, hence this reason for using alkalies no longer exists. Nevertheless, as alkalies have given good results clinically, it is important to determine the explanation of their successful use. Most of the authorities have stated that one part of limewater to 16 or 20 parts of cows' milk was sufficient to make its reaction correspond to that of breast milk. Others have stated that 20 grs. of bicarbonate of soda is the equivalent of 1 oz. of limewater for this purpose. They have, however, advised the use of the same amount of limewater or bicarbonate of soda in all sorts of mixtures of milk and water without regard to the amount of milk. That is to say, while the alkalinity of the food is the same in each mixture the amount of alkali for each ounce of milk in the mixture varies with each mixture. Practice has, therefore, been out of joint with the theory and, as just stated, the theory was founded on wrong premises.

Cows' milk, while it has only a slight initial acidity when drawn from the cow, later develops a secondary acidity due to lactic acid produced by certain bacteria. This increasing acidity, unless checked, may become a serious factor and, when the milk is ingested, lead to the formation of more tough curds than can be digested by the pepsin secreted by the stomach, while these same curds are not in a form suited for intestinal digestion. The addition of an alkali may not only neutralize lactic acid as fast as it is produced, but will also cause the resolution of flocculi of the lactates of casein already formed. If it were possible to add just the exact amount of alkali to neutralize the lactic acid the effect of the alkali would cease at this point. In practice, however, it either neutralizes but a part of the acid if it has been added in smaller amount, or if added in excess renders the food alkaline when it enters the stomach. This alkalinity of the food has a definite influence upon the stomach digestion, for the rennet ferment will not act upon casein in the presence of alkali, and the normal formation of paracascin clot is prevented until the alkali is neutralized or removed, and, moreover, an excess of alkali will neutralize the hydrochloric acid afterwards secreted by the stomach until the alkali is exhausted. As pepsin cannot act except in an acid medium, a sufficient excess of alkali or antacid would entirely prevent stomach digestion and the milk would pass unchanged into the intestine. In this manner the entire labor of digestion would be placed upon the intestine This is probably not infrequently the case when the addition of alkali is large.

Milk diluted with plain water containing no alkali is promptly clotted in the stomach by the rennet ferment and the clot is transformed into tougher masses when acid is secreted. A moderate amount of alkali which neutralizes both the hydrochloric and other acids already present in the stomach holds in check for a time the action of the rennet ferment, prevents the immediate clotting of all the milk by the rennet and allows time while enough acid is being secreted to overcome the alkali for the escape of more or less unchanged alkaline milk into the intestine; thus, when the acid reaction is again finally established in the stomach only a portion of the milk, depending on the length of time which has elapsed, remains in the stomach to form curds and to be digested by the gastric juice. This use of a moderate amount of alkali has the advantage of dividing the digestion of the milk between the stomach and the intestine and may reduce the amount of milk to be digested by the stomach to the capacity of the digestion.

The kind of alkali employed, as well as the amount, is of importance. Limewater and bicarbonate of soda differ both in their properties as antacids and in the influence which they produce upon milk and its curding. Limewater swells the mucoid proteid of milk, thickening the milk and making a visible change in its consistency. Limewater is a very weak antacid, 1 oz. being neutralized by ¾ gr. of hydrochloric acid. Bicarbonate of soda does not swell the mucoid proteid of the milk, but if milk to which bicarbonate of soda has been added without subsequent heating is ingested and there meets with acid, carbonic acid gas will be liberated during digestion, and if curds are formed they will be porous from the presence of minute bubbles of the gas. If food to which enough bicarbonate of soda has been added to render it slightly alkaline to litmus is heated, carbonic acid gas is liberated and carbonate of soda, washing soda, formed, which increases the alkalinity. Pasteurizing or sterilizing, therefore, increases the degree of active alkalinity and lessens the possibility of a more porous curd. The amount of bicarbonate of soda recommended in most textbooks, that is, 1 to 2 grs. to the ounce, is relatively greater than the amount of limewater usually prescribed in its neutralizing power upon acids, 20 grs. of

[3] Southworth: Archives of Pediatrics, 1905, Vol. xxii, p. 131.

bicarbonate of soda being about twelve times as effective as an ounce of limewater.

One ounce of limewater and 20 grs. of bicarbonate of soda have about the same effect upon the clotting of milk by rennet. Bicarbonate of soda is itself an antacid. Its alkalinity is due to impurities in the form of carbonate of soda. The alkalinity of bicarbonate of soda, therefore, varies in different samples and is increased by pasteurizing or sterilizing. It is the alkali and not the antacid which prevents the clotting by rennet.

Limewater added to milk checks the immediate action of rennet upon the whole mass and makes the clotting more gradual, altering the form of the curd, and allowing possibly of the passage of some unaltered milk into the intestine, but leaves no large amount of alkali behind to inhibit the stomach digestion. Bicarbonate of soda added to milk prevents the action of rennet, hydrochloric acid and pepsin until the large amount of antacid is finally neutralized. In the meantime portions of the milk are not liable to get beyond the fluid state and continue to escape into the intestine. This reduces materially the burden of digestion laid upon the stomach, or if the alkalinity persists a sufficient time, relieves it entirely, the labor falling upon the intestine.

The effect of adding 5% or 10% of limewater, or of 1 or 2 grs. of bicarbonate of soda to the ounce, to a mixture, depends entirely upon the amount of milk which the food contains. The usual practice of adding a fixed amount of limewater or bicarbonate of soda to 20 oz. of food mixture amounts to beginning the feeding of young infants, whose food contains but a small amount of milk, with a milk which is highly alkalinized. This high alkalinization decreases as the child takes a stronger and stronger food containing more milk. The effect in the beginning, therefore, is to prevent the action of the rennet ferment and promote rapid emptying of the stomach. This assists in tiding the infant over the period of undeveloped and difficult gastric digestion, and as later the relative amount of alkali is reduced steadily, its effect is gradually lessened.

THE DIETETIC USE OF PREDIGESTED LEGUME FLOUR, PARTICULARLY IN ATROPHIC INFANTS: WITH A STUDY OF ABSORPTION AND METABOLISM.[4]

They first determined that the administration of predigested bean flour did not disturb digestion, and then studied its absorption and the metabolism during its use. They then gave it to a series of atrophic infants. They summarize their results somewhat as follows: Bean flour in which the starch is predigested by means of a diastatic ferment seems to be well digested and absorbed by infants and adults. An extremely concentrated food may be given in this way in fluid and partially digested form. Its influence upon the digestive tract in infants is usually distinctly favorable and its influence upon metabolism in infants and adults is at least equal to that of milk. The infants were usually given about 2½% of bean flour in milk modifications. Adults and older children object to the taste, but infants take it readily in milk. Of 15 infants treated 3 did not do well. The others gained rapidly. These were all atrophic infants that had previously been stationary or losing. A child of two years that had had persistent and very dangerous disturbance of digestion with advanced malnutrition improved immediately, and the digestive tract became nearly normal within a few days and the child repeatedly gained over two pounds a week. It took nothing but bean flour solution.

They state that these results are certainly unusual, but that they need to be controlled before definite conclusions can be drawn from them. It seems possible that they were due to a special influence of the legume flour on metabolism and perhaps to a particular influence of the nuclein contained in the flour upon the tissue building processes. One important point is definitely determined; that is, that it is easily possible to administer in this way as much as 0.75% to 1% of proteid, a fact of decided consequence in those cases in which it is difficult or impossible to administer a proper amount of milk proteid. They suggest that the favorable influence upon nutrition is more largely referable to the character of the proteid than to the amount.

SOME PHYSICAL SIGNS IN INFANTS AND CHILDREN NOT SUFFICIENTLY EMPHASIZED.[5]

An area of impaired resonance under the left clavicle. — This area is always present under the inner third of the clavicle. It occasionally extends outward to the midclavicular line, gradually fading as this point is approached. It extends in a downward direction to the first interspace and not infrequently blends into the cardiac dullness. The degree of impairment varies in different individuals. It is difficult to elicit in early infancy. They are not able to give an entirely satisfactory explanation for its presence, but think that the exposed condition of the great vessels may have some bearing on its production.

The area of transmission of the bronchial type of breathing. — This is ordinarily heard over the root of the lungs and varies greatly in different children. Posteriorly it is usually limited to the interscapular space and supraspinous fossæ. It may sometimes be heard just above and in front of the angle of the scapula. When heard here it is usually bilateral.

The influence of position on the percussion note in infants. — They emphasize the striking differences on the two sides of the chest when the infant is examined lying on its side with the dependent lateral surface of the chest wall in intimate contact with the bedding — an incorrect position which is commonly employed in the examination of the chest. Under these circumstances there is a striking increase in the height of

[4] David L. Edsall, M.D., and Caspar W. Miller: Amer. Journal of the Medical Sciences, 1905, Vol. cxxix, p. 663.

[5] Hamill and Boutillier: Jour. of the Amer. Med. Association, 1905, Vol. xliv, p. 26.

the pitch of the percussion note on the down side which proves very misleading. The infant should be examined with both sides of the chest free and symmetrical.

The apex beat of the heart. — They studied children in the upright position and recorded as the apex the point farthest to the left and lowest down at which it is possible to obtain any cardiac impulse. They conclude from the examination of 275 cases that up to the sixth year the apex beat is found much more commonly in the fourth intercostal space and in the midclavicular line, and that after this period it is usually in the fifth space, in or just within the midclavicular line. Occasionally it continues to beat in the fourth space even up to the twelfth year.

Area of cardiac dullness. — They examined 191 cases. They were examined in the upright position except when under one year of age, where the recumbent posture gave more satisfactory results. They conclude that the average outline of the heart for children under three years of age is as follows: Upper border, second rib; right border, midsternum; left border, just without the midclavicular line.

From the third to the sixth year: Upper border, the upper border of the third rib; right border, midsternum; left border, in or just without the midclavicular line.

From the sixth to the twelfth year: Upper border, third rib; right border, from the midsternum to the right edge of the sternum; left border, most commonly in the midclavicular line. (The right borders as above given cannot, of course, be the right border of the heart. — J. L. M.)

The venous hum. — In the study of the venous hum they required that it should be present when the patient was examined with the head fixed in the median line. They examined all their patients in both the upright and recumbent postures. Two hundred and twenty-six cases were studied; of these 24 occurred in the first three years of life. In all but 36 the murmur was heard best over the right jugular vein; in the others, over the left. In 38 instances the distribution was very extensive. In several instances the murmur was distinctly audible along the right edge of the sternum as low as the second costal cartilage. The influence of posture on the sound was striking. In only ten cases was the murmur audible when the patient was recumbent, and in these it was much louder in the upright position. The frequency of this phenomenon in cases in which there was an entire absence of other signs of enlargement of the bronchial glands has led them to place very little reliance on it. The extensive area of distribution of the venous hum may result in its being mistaken for murmurs at the base of the heart or for murmurs produced by lesions of the vessels. In the upright position the murmur had a peculiar humming, continuous sound, characteristic of the venous hum, but in several instances in the recumbent posture, there persisted during systole a faint systolic whiff.

Functional heart murmurs. — They studied these murmurs in 267 cases, 23 of these occurring during the first three years of life. The murmur was best heard, in the majority of instances, in the pulmonary area. The next point of maximum intensity was in the space between the third rib, the left edge of the sternum and a point within and above the apex beat. In some it was best heard at a point slightly above and just within the apex. In 61 cases it was audible only in the pulmonary area. In some instances, however, the area of distribution was very extensive. In the vast majority of cases the murmur was inaudible in the upright position, and in only 4 was it heard in the upright position, and not in the recumbent. They are inclined to think that the murmurs were not dependent on anemia, but on disturbances of nutrition.

THE DIAGNOSIS OF ENLARGED BRONCHIAL LYMPH NODES.[*]

Very many different factors and very diverse conditions may induce inflammation of the bronchial lymph nodes. Consequently, inflammation of these nodes is extremely common. Simple adenitis is frequently only the precursor of tubercular adenitis. Many cases recover, however, without subsequent tubercular inflammation. It is very desirable both with regard to prophylaxis and treatment to be able to diagnose enlargement of these nodes. Unfortunately, this is often impossible. Several symptoms, and in some cases physical signs, justify the diagnosis on the grounds of probability.

One of the early symptoms suggestive of enlarged bronchial nodes is a peculiar paroxysmal cough resembling that of pertussis, except that there is no crowing inspiration. Broadly stated, the physical signs of the enlarged bronchial lymph nodes are always those of compression. Dullness over the sternum behind the manubrium and the upper part of the gladiolus and extending laterally on either side of the bone is a sign of value. Some authorities claim that an interscapular dullness may be made out in these cases by careful percussion. This is somewhat doubtful, however, and theabsence of dullness does not preclude the diagnosis. Unilateral alteration in the breath sounds is of importance.

If a child with enlarged bronchial nodes bends the head back so that the eyes look to the ceiling, a venous hum of varying intensity is heard over the manubrium. This venous hum may be heard, however, where there is no other evidence of disease of the bronchial glands. It cannot be elicited, moreover, if the gland is bound down by adhesions. In ten of the cases studied by Friedlander there was a marked lymphocytosis. In the cases which were followed up the lymphocytosis disappeared, to a degree, with the subsidence of the symptoms.

He concludes that if further observation shows a constant lymphocytosis we shall have an additional and valuable sign in the diagnosis of this condition.

[*] Friedlander: Jour. of the Amer. Med. Association, 1905, Vol. xliv, p. 19.

GENERAL RIGIDITY IN CHILDHOOD.[7]

Mme. Nageotte-Wilbouchewitch reported to the Société de Pédiatrie the histories of a number of children which she had examined and followed. These children presented many points in common, although differing in degree. They held the head low, while the back was kyphotic and the abdomen prominent. The arms appeared too long and the elbows were kept a little flexed. They appeared awkward, walked slowly and awkwardly, sometimes unsteadily. They were slow and feeble. Their intelligence varied. The extremes of motion in the extremities and spine were all limited. The rigidity was sometimes generalized and extreme, in others only partially and slight. This rigidity is never congenital, but appears early. The author has seen it develop in a number of children whom she had known previously to be supple and normal.

The etiology is not at present accurately known. It usually appears, however, at the period of greatest growth. Boys are more often attacked than girls. The well-to-do classes are more often attacked than the hospital class. Heredity plays an important part in its production. Neurasthenia, insanity, hysteria and chronic rheumatism are present in many of the families. In some cases the same condition was present in the parents.

The pathology is obscure. In some severe cases articular and ligamentous malformations are present. In most cases the muscles are at fault. There is, however, no contracture nor muscular hypertonicity. The reflexes are normal. The author remarks that the muscles appear as if they were too short or too little extensible on account of the lack of harmony between their growth and that of the bones.

These children ought to be considered as sick and taken care of. It is important to struggle against the chronic condition of asphyxia which may cause various pulmonary affections and against the insufficiency of their movements which may lead to chronic rheumatism. Active and passive exercises are indicated. These must be continued over many years, at any rate until the period of growth is passed. In any case, an entirely normal condition cannot be hoped for. It is especially difficult to enlarge the thorax. In a general way the physical condition corresponds to the mental.

Reports of Societies.

ABSTRACT REPORT TWENTIETH ANNUAL MEETING ASSOCIATION OF AMERICAN PHYSICIANS.

HELD IN WASHINGTON, D. C., MAY 16 AND 17, 1905.

(Concluded from No. 25, p 733.)

CLINICAL NOTES ON THE USE OF NUX VOMICA, ESPECIALLY IN CERTAIN FORMS OF HYPERCHLORHYDRIA.

JOHN H. MUSSER, Philadelphia: The writer found that in cases of gastric neurasthenia with hyperchlorhydria in which sedatives and antacids, etc., failed, large doses of nux vomica gave relief, when administered in ascending doses. He had found it more serviceable than any other drug; beginning with small doses and increasing until 40, 50 or 60 and even as much as 80 drops were given three times daily. It was given sometimes for a period of four or five months. In younger subjects the drug could be given in much larger doses than in the older ones. He laid special emphasis upon the employment of nux vomica and not strychnia with which he said the same good results would not be obtained; there were other elements in the tincture that were of value. The drug should be given until its physiological effect was produced as shown by slight stiffness in the neck and vertigo. Then the dose might be reduced 5 or 10 drops for a while and then increased again. It was best given before meals.

DISCUSSION.

JAMES TYSON, Philadelphia, had listened to a paper on this same subject by Dr. Musser some years ago advocating this method, after which he had adopted it in his practice and could confirm all that Dr. Musser had said as regards its efficacy. He had found it of signal service in the treatment of gastric conditions.

UMBILICAL HERNIA AS A LITTLE RECOGNISED SOURCE OF ABDOMINAL PAIN.

D. D. STEWART, Philadelphia: The paper dealt with the necessity of having in mind that hernia in the linea alba above the umbilicus, however small, might be a cause of recurring abdominal pain and various dyspeptic symptoms, the source of which, the hernia escaping recognition, was often regarded as obscure. These herniæ, when small, were very commonly overlooked, the patient being treated for indigestion, gastralgia, gallstones and the like. The importance of having in mind the most frequent occurrence of umbilical hernia, and a careful search for it in abdominal examinations, in all cases in which pain exists, was pointed out. Detailed histories of several cases were given.

CONCERNING THE OBSCURITY OF DIAGNOSIS SOMETIMES ATTENDING STONE IN THE KIDNEY, WITH REPORT OF CASES.

D. D. STEWART, Philadelphia: The author referred to the recognition of certain observed cases of renal calculus, the symptoms of which were unusual and quiescent as concerned the kidney, and in which stone or other affection of the kidney or ureter had not been suspected until they came into the writer's hands. Certain cases simulating renal calculus — one in an hysterical subject who had been previously operated upon resultlessly for suspected stone, and in whom a second operation had been contemplated — others in which the symptoms of calculus were due to inflammatory obstruction of the ureter, were detailed, and the points in the diagnosis of these cases were discussed.

DISCUSSION.

J. N. DANFORTH, Chicago, showed a calculus removed from the bladder of a female medical student. Several stones had been removed from the kidney a year later. A calculus of large size was removed from the left kidney and another from the right kidney at post-mortem. There was pus, albumin, phosphates, but no pain, although a calculus weighing about five ounces was removed from each kidney.

JAMES TYSON, Philadelphia, had had considerable experience with cases simulating stone in the kidney as well as actual cases of this kind, many of them operated upon without finding stone. In the last two operations there seemed to be a condition which might ex-

[7] Mme. Nageotte-Wilbouchewitch: Bulletin de la Société de Pédiatrie, 1905, No. 2, p. 68. Abstract in Révue Mensuelle des Maladies de l'Enfance, 1905, Vol. xxiii, p. 190.

plain the symptoms,—tenderness in the kidney with catarrhal condition of the ureter and slight amount of albumin. There was in each case at operation what might be called a "capsulitis," the capsule being adherent and depressed in spots. Both cases followed by recovery. He thought the same condition might be found in other cases simulating stone in the kidney.

F. Forschheimer, Cincinnati, had seen three cases like those of Dr. Tyson in which tenderness existed, and other evidences of renal calculus, and yet urinary analysis showed nothing of the sort. In the literature the condition had, he thought, been referred to as "perinephritis." All three of his cases made a good recovery.

Frank Billings, Chicago, referred to the microscopic evidence of blood in the urine as a very important point, and cited the case of a patient with acute pain in the right abdomen suggestive of gallstone and possible perforation. Microscopically blood appeared in the urine, which was a good differential point between appendicitis and calculus in the kidney. He thought the x-rays was often a handicap in diagnosis instead of a help, especially unless the x-ray findings were interpreted by a skilled physician. He cited the interesting case of a woman seen by him who had suffered from pain in the right abdomen, and diagnosis of renal stone had been made. An x-ray picture was obtained and interpreted as ureteral calculus close to the bladder. Several pictures were taken and all convinced the specialist that there was a calculus. Dr. Billings had expressed doubt as to the existence of stone when he saw the patient and insisted upon further examination which resulted in the discovery of a bulbous pessary in the vagina.

ABDOMINAL TUMORS.

R. C. Cabot, Boston: This paper consisted of statistics bearing on the relative frequency of abdominal tumors and on physical signs most useful in their diagnosis, including the study of 4,000 cases from the records of the Massachusetts General Hospital. They were classified as follows: Abdominal tumors, 4,876; of the abdominal wall, 150; of the liver, 1,702; of the spleen, 206; stomach, 265; pancreas, 37; intestinal peritonitis, 173; mesentery and omentum, 22; kidney, 378; retroperitoneal, 9; aneurysm, 25; uterus, 809; ovary, 437; broad ligament, 85; hernia, 488.

Tumors of the abdominal wall: Hernia, 488; abscess, 79; sarcoma, 27; lipoma, 17; actinomycosis, 12; cancer, 6; hematoma, 4; fibroma, 3; tuberculosis, 2; total, 638.

Tumors of the liver: Passive congestion, 1,288; biliary cirrhosis, 153; Hanot's cirrhosis, 0; cancer, 151; abscess, 51; lipoma, 46; Hodgkin's, 10; amyloid, 9; hydatid, 8; syphilis, 8; fatty, 6; simple cyst, 6; actinomycosis, 3; sarcoma, 2; displaced, 2; tuberculosis, 1; total, 1,702.

Tumors of the spleen: Myelogenous leukemia, 58; lymphatic leukemia, 13; biliary cirrhosis, 60; unknown cause, 26; chronic malaria, 16; cancer, 10; abscess (?); Hodgkin's, 12; pernicious anemia, 3; myeloid, 2; sarcoma, 2; floating, 1; tuberculosis, 0; total, 206.

Tumors of intestines with peritonitis: Cancer, 90; tubercular peritonitis, 33; intussusception, 17; acute obstruction, 20; dilated colon, 6; tuberculosis, of cecum, 2; mesenteric tuberculosis, 3; fecal impaction, 2; omental cancer, 18; omental sarcoma, 4; total, 195.

Tumors of the kidney: Floating kidney, 227; malignant, 27; tuberculosis, 41; abscess, 16; cyst, 10.

Tumors of the stomach: Cancer, 285.

Tumors of the pancreas: Acute pancreatitis, 1; chronic pancreatitis, 1; cancer, 32; cyst, 3.

Tumors of the uterus and ovaries: Uterine fibroma, uterine sarcoma, 14; tumor, 90; cancer, 609; ovarian cyst, 382; cancer, 43; fibroma, 11; sarcoma, 1.

An interesting point in connection with tumors of the spleen was the small number of cases of myelogenous leukemia. Dr. Cabot explained a very ingenious method of keeping such statistics in book form.

DISCUSSION.

M. H. Fussell, Philadelphia, confirmed what had been stated regarding the chronicity of carcinoma of the cecum, and had recently seen a case lasting fourteen months.

W. S. Thayer, Baltimore, thought the frequency of fever in connection with cancer of the liver was a very interesting point. In two instances of this kind he had seen the diagnosis of typhoid fever made. During the past year had seen a case of cancer of the liver in a nurse, who developed fever and chills, anemia and slight jaundice. The liver was enlarged and smooth on palpation. Extensive leucocytosis and the diagnosis of abscess of the liver was made. Laparotomy showed a rapidly growing sarcoma of the liver.

A. Jacobi, New York, said the rapidity of growth and pressure was the cause of the fever, and that when cancer of the liver ceases to grow the fever also subsides.

John H. Musser, Philadelphia, said that chronicity was a feature in cancer of the larger bowel, not only of the cecum, but of other portions of the gut; one case ran over a period of eighteen months.

R. C. Cabot, Boston, said in closing that the absence of any considerable number of cases of tuberculosis was due to the fact that at the Massachusetts General Hospital they did not receive tuberculosis of the lungs.

A CASE OF CARDIOSPASM.

Frank Billings, Chicago: The patient had been sent to him with cardiospasm, with hypertrophy of the circular fibers and dilatation of the esophagus. He taught the woman to pass the tube for herself which she learned to do well. Sometimes the spasm would occur so that she could not pass it for some time. In this way she succeeded in feeding herself. Dr. Sippy had been working upon a plan of treatment for this condition and Dr. Billings would ask him to demonstrate his method to the society.

A NEW TREATMENT FOR CARDIOSPASM.

Dr. Sippy, Chicago: Dr. Sippy referred to the varieties of the condition, primary cardiospasm resulting in dilatation or atony of the walls of the stomach, primary atony of the walls of the stomach with secondary cardiospasm, disease of the pneumogastric nerve, inflammation of the esophagus causing reflex spasm, congenital saculations with subsequent cardiospasm. Primary cardiospasm was the most common. Had seen three or four cases in which dilatation had failed. Balloons had been devised for dilating the esophagus, but had not been successful because pressure was not exerted at the right place. The speaker had devised a balloon into which passed an ordinary esophageal bougie, the balloon being covered to prevent undue expansion. When distended it was about 14 cm., just a little more than the amount of dilatation required, and a little more than was used by those who employed the method of dilating from below. A patient had had this method used twice with very good results; she had been enabled to take food as other people did and had had no discomfort.

CONSIDERATIONS ON PROTEID DIET WITH ESPECIAL REFERENCE TO THE DISTRIBUTION OF AMIDO-NITROGEN, DIAMINO-NITROGEN AND MONAMINO-NITROGEN THEREIN.

L. F. BARKER and B. A. COHOE, Chicago: The writers thought that the well-known variations in tolerance of the same individual for different kinds of proteid food made it desirable to search for a cause in the chemical constitution of the foods themselves. Though studies of the nitrogen content and purin holdings in various articles of proteid diet had been undertaken, the distribution of the various forms of nitrogen had not hitherto been investigated. The authors had applied the method of Hausmann, as improved by Osborne and Harris and by Gumbel, for this analysis. The amido-nitrogen in various cuts of beef, veal and pork, in liver, in thymus, in fish and in chicken, had been determined.

DISCUSSION.

V. C. VAUGHN, Ann Arbor, said that the bacterial cell is such a chemical combination, and that if you take the soluble substance and purify it you get exactly the same results, showing that the cell is a definite chemical substance. He thought if we regarded the cell as a definite chemical combination and the difference in its function as due to the introduction of some abnormal group into this combination, or an abnormal arrangement of certain groups, then there was a possibility that sometime in the dim and distant future we might be able to make internal medicine thoroughly scientific. This work, he thought, had a practical bearing on the treatment of certain diseases.

THE CHLORIDE EXCHANGES IN THREE CASES OF NEPHRITIS, WITH REFERENCE TO THE DECHLORIDATION TREATMENT.

A. O. J. KELLY and CHARLES A. FIFE, Philadelphia: The authors studied three cases of nephritis with special reference to the chloride intake and the chloride output, the presumed chloride retention in nephritis; the relationship, if any, between such chloride retention and edema; and the effect upon the edema and the other phenomena of nephritis of an (almost) salt-free diet, and of the administration of sodium chloride. The intake of sodium chloride was of value in the prognosis and low excretion suggested a bad prognosis. Sodium chloride retention may occur in any case of nephritis. A salt-free diet may result in the disappearance of edema and the use of such diet in these cases is often of value. The injection of saline solutions in these cases of nephritis might at times be attended by considerable harm.

CHLORIDE RETENTION IN NEPHRITIS.

JOSEPH L. MILLER, Chicago: Reference was made to the poor elimination of sodium chloride in nephritis and to the increase in edema, increase in albumin and uremic symptoms following the use of large amounts. Edema was partly the result of lessened perspiration due to increased molecular concentration of body fluids (Kovesi). The results in two cases of acute and six of chronic parenchymatous nephritis were given; one case of secondary contracted kidneys, one case of myocarditis and four normal individuals. Chloride retention was equally great in normal cases. No visible edema, but increase in weight. Retention in nephritis was only one of degree. The author concluded that there was no doubt that excessive salt should be avoided as it caused retention and increased osmotic pressure. Especially to be avoided were the soups and broths as they contained a relatively large amount of salts. The use of subcutaneous injections of salt solution was contraindicated in uremia.

DISCUSSION.

A. STENGEL, Philadelphia, referred to one of the cases under the care of Dr. Kelly and said the patient had improved progressively during the treatment. There was great loss of weight accounted for by the loss of water. Subsequently there was increase of weight due to improved general condition. He was not sure that the chloride free diet accounted for the improvement. In a serious case he had substituted distilled water for the normal salt solution with good effect.

F. P. KINNICUTT, New York, thought the use of large quantities of salt solution by hypodermoclysis was to be forbidden in these cases.

S. J. MELTZER, New York, thought the therapeutic effect in these experiments often depended largely upon the temper of the observer. He said osmosis is controlled by the sodium chloride, and it had occurred to him that this might have some bearing upon the treatment by lavage of the stomach as suggested by Dr. Sawyer for diabetes. In diabetes washing out the stomach removes a good deal of one factor in osmosis which miight account for the improvement. Perhaps the same success might be obtained by using a salt-free diet.

JOS. COLLINS, New York, reported upon 25 cases of epilepsy treated with a salt-free diet with the result that 24 cases showed during two years of this treatment a reduction of 38% in the frequency and severity of periodic attacks, which was a great improvement upon the best known treatment of epilepsy at the present time. He thought the normal individual might take as much salt as he liked so long as his kidneys and vessels were in good condition, up to a certain time, but he thought it was flying in the face of nature to eat inordinately of salt.

A. O. J. KELLY, Philadelphia, said, in closing, that he had no practical knowledge of the results of large quantities of salt taken in health; the output probably equaled the intake in healthy persons. He referred also to the advantage of studying the salt excretion in the feces as well as in the urine.

THE TOXICITY OF BILE.

S. J. MELTZER and WILLIAM SALANT, New York: The authors gave a report of some results obtained in a series of experiments of the various toxic aspects of bile upon animals, rabbits and frogs.

ON THE NATURE AND ORIGIN OF CHOLEMIA AND UREMIA.

S. J. MELTZER, New York: The writer reviewed the various theories of the nature and origin of cholemia and uremia and presented a theory based partly upon the experimental results reported in foregoing papers. The bile contained two elements, which when neutralized produced no symptoms, but when not so balanced the various symptoms were brought out. In cholemia and uremia there were symptoms belonging to the motor sphere and sensory sphere. That the symptoms may be produced by a number of substances. These substances in the body may be neutralized to such a degree as to give rise to no symptoms. This balance controls life. If this relationship is broken one little accident may bring about the bad effect.

JAMES EWING, New York, said that Virchow had stated that in uremia, lesions of the liver were quite as serious as those of the kidneys. He had secured enough evidence himself to warrant the belief that in a certain number of uremia cases there were lesions in the liver and in many, the lesions of the liver are more serious than those of the kidney.

XANTHELASMA AND CHRONIC JAUNDICE.

T. B. FUTCHER, Baltimore: Dr. Futcher's paper was based on the observation of three cases of multiple xanthomata in patients with chronic icterus admitted

to the medical wards of the Johns Hopkins Hospital. All three patients were women, their ages ranging between thirty-nine and forty-two years. In two the jaundice was occasioned by gallstones and in the third by hypertrophic cirrhosis of the liver. In one case there was eventually spontaneous disappearance of the xanthomata. The causal relationship between the jaundice and the xanthomata was discussed and the cutaneous and visceral distribution of the xanthomata also considered, with a description of the histological appearance.

DISCUSSION.

A. JACOBI, New York: Do these conditions of the eyelids belong to this class? was asked by Dr. Jacobi, who said that he used to take them for fatty degeneration and dissect them off. Now he treated them differently; he let them alone.

T. B. FUTCHER, Baltimore, in closing, said he thought the cases referred to by Dr. Jacobi were analogous to, but not identical with, these xanthomata. They were more of a fibro-lipomatous character than the true xanthomata.

A REPORT OF A CASE OF LYMPHATIC LEUKEMIA IN A CHILD OF THREE AND A HALF YEARS.

JOHN LOVETT MORSE and HARRY C. LOW, Boston: The patient was aged three and a half years; duration, five months. Blood picture was suggestive, but not characteristic at four months. Lymph node removed at end of three months suggested a sarcomatous growth and did not justify diagnosis of leukemia. Node removed at the end of four and a half months showed an enormous proliferation of the lymphoid cells and a characteristic appearance of lymphatic hyperplasia. The chief peculiarities of the case were the atypalic blood and lymph nodes at the early examination.

DISCUSSION.

F. FORCHHEIMER, Cincinnati, reported a case in a child of eight months beginning with staphylococcus sore throat, showing 90,000 leucocytosis, of which 50% were lymphocytes. Shortly before death there were 151,000 leucocytosis, of which 99.6% were lymphocytes. Death in ten weeks.

L. F. BARKER, Baltimore, asked if the writer regarded the histological changes in the lymph glands as evidence that the lymphocytes were derived from these glands.

W. S. THAYER, Baltimore, had seen two cases that corresponded closely to those reported by Dr. Morse, cases that in the beginning showed enlargement suggestive of Hodgkin's disease.

WILLIAM H. WELCH, Baltimore, commented upon the great importance of making careful histological examinations to distinguish between Hodgkin's disease and leukemia and lympho-sarcoma.

ON CALCAREOUS DEGENERATION OR INFILTRATION.

J. GEORGE ADAMI, OSCAR KLOTZ, Montreal: This was a lantern slide demonstration on the stages of calcareous degeneration. The following conclusions were drawn:

(1) The earliest change in the cells, which later undergo calcareous degeneration, is one of cloudy swelling or coagulation necrosis.

(2) Following this, fatty changes are noticeable in the cells, and now, by means of proper reagents, soaps with potassium, sodium and presumably ammonium bases, can be detected.

(3) Such soaps and albumins form a combination which is insoluble in water or salt solution.

(4) Soaps and fatty acids have an affinity for the calcium salts in solution in the body fluid, and form with them an insoluble compound.

(5) Later, judging from the fact that phosphate and carbonate of lime are formed, and the deposits give no reaction for fats, the fatty acid moiety of the calcium soap is replaced by the more powerful carbonic and phosphoric acids.

EXPERIMENTAL ARTERIOSCLEROSIS WITH DEMONSTRATION OF SPECIMENS.

RICHARD M. PEARCE and E. STANTON, Albany: This paper consisted in a study of the changes produced in the large vessels of the rabbit by repeated intravenous injections of adrenalin. The gross specimens were demonstrated and the histological changes described. There was degeneration of the media affecting the muscle fibers. After ten or twelve injections there were changes in the elastica. After a certain period changes were found analogous to arteriosclerosis in man; rigid, more or less brittle tubes, more or less dilated and irregular, with elevations and plaques of calcification. The experiments supported the theory that arteriosclerosis begins in the media.

PHLEBO-SCLEROSIS.

C. F. MARTIN, Montreal: Sclerosis of the veins seemed to be of very much the same nature as that of the arteries. The peripheral veins were more affected than the deep ones, and those of the lower extremities were chiefly involved. The condition was extremely common in the young and more common in males than females. No evidence of inflammation or degeneration in majority of the sections. It was regarded more as a functional condition, due to strain.

OBSERVATIONS ON METABOLISM IN A CASE OF ACUTE LEUKEMIA AND A CASE OF PURPURA HEMORRHAGICA.

D. L. EDSALL, Philadelphia: This case of acute leukemia showed remarkable tissue destruction and the same was true of the case of purpura hemorrhagica. The conditions in the latter case indicated that hemorrhagica was not an important feature in causing the remarkable nitrogen loss in either class of cases. There were also certain differences in the metabolism in the two cases, indicating differences in the character of the conditions producing the tissue loss, an additional evidence that hemorrhagic conditions are of varied nature.

THE INFLUENCE OF THE X-RAY ON METABOLISM IN LEUKEMIA.

J. H. MUSSER and D. L. EDSALL, Philadelphia: One of two cases studied responded to the x-ray treatment by rapid improvement; the other was uninfluenced and was soon fatal, though there had previously been improvement on x-ray treatment. In the first case there was, immediately after starting x-ray treatment, a remarkable increase in the excretion of nitrogen, phosphorus, uric acid and xanthin bases; in the fatal case there was at first a slight rise, but the excretion soon fell back to the previous point or lower, and with the approach of death the excretion became very low. This seemed to the authors clear evidence that the x-rays act not through a direct effect, but through an influence upon some body process, probably upon autolysis. They thought that the x-rays should not be used in a reckless way as they were undoubtedly capable of dangerous effects as well as of beneficent ones.

DISCUSSION.

JAMES EWING, New York, thought it worth while to call attention to the fact that several cases had had autopsy reports which now figured in the literature as cured.

L. F. Barker, Baltimore, thought that the fact that katolysis had now been placed upon a working basis would be of great value.

CHRONIC ACETANELID POISONING.

D. D. Stewart, Philadelphia: The writer reported a recently observed case, the symptoms and blood condition of which at first suggested pernicious anemia. The patient was discovered to have taken daily for several years considerable quantities of a secret nostrum, the chief ingredient of which was acetanelid. Rapid improvement followed the discontinuance of the drug. He pointed out the danger in the common use of the aniline products and in the indiscriminate prescribing of these preparations.

A BRIEF REPORT ON RECENT RESEARCHES IN THE WRITERS' LABORATORY ON BACTERIAL TOXINS AND IMMUNITY.

V. C. Vaughn, Ann Arbor: The reader said that when bacterial cellular substance is heated at 78° with a dilute solution of sodium hydrate in absolute alcohol, the cell substance is split into two portions. One portion is soluble in absolute alcohol and contains the poisonous group of the cell. This poisonous group has been studied, having been obtained from the colon, the typhoid and the anthrax bacillus and the micrococcus of pneumonia. A similar, if not identical, poisonous substance may be obtained in the same way from certain proteid bodies, such as egg albumin and peptone. Animals may be immunized with this toxic body. However, the immunity thus induced is not specific, or at least not markedly so. The part of the cell substance insoluble in alcohol is soluble in water, and with this a specific immunity can be obtained. This second portion also contains a hemolytic body. The kinds of immunity obtainable with these split products and the nature of the hemolytic substance were discussed. The writer believed that all cells were definite chemical compounds composed of a great number of atomic groups. Some of these atomic groups might be dropped off and that was the cell secretion. All bacterial toxins lower the temperature as soon as they are sufficient to overcome the resistance of the individual. The temperature is an index of the resistance. The poison is a neurine substance. He was inclined to think that if an antitoxin for typhoid was obtained it would be this poisonous part of the typhoid germ; not a serum. It would have to be used, of course, in the early stage.

DISCUSSION.

William H. Welch, Baltimore, thought the experiments served to throw a great deal of light upon the subject, but he questioned whether they explained the phenomena of infection at present, the specific phenomena of the Peyer's patches, for instance, etc. The characteristic lesions could not be produced with the toxins obtained from cultures. He questioned if one would be justified in taking the position that the specific poison is contained in large amount in the killed culture. The bacteria inside the body were capable of producing poisons not produced in the cultures. He believed that we would not produce an effective immunity by the use of killed cultures. The immunity produced in that way was disappointing. He found it difficult to believe that it was the death of the bacteria that was responsible for the phenomena of the disease rather than their living activities.

V. C. Vaughn, Ann Arbor, in closing the discussion upon his paper said that Dr. Welch's statement that the bacteria produced different substances in the body from what they did in cultures was not based upon any sound evidence. He believed that bacteria were living substances and built up within themselves poisons just as the poppy, for instance, produced opium. As to the immunity obtained from dead cultures not amounting to much, that was true, but that was not what he particularly spoke of. He injected the animal with the non-poisonous part many times. Dr. Vaughn said that no one else had attempted to get an immunity by splitting up the germ substance in this way, and remarked that sodium chloride is not poisonous, but when split up into sodium and hydrochloric acid, both substances were poisonous.

REPORT OF A CASE OF ACROMEGALY.

Charles L. Greene, St. Paul: In 1901, the patient presented the usual symptoms of acromegaly: (1) A condition of the hands, neck, shoulder, not to be distinguished from myxedema.

(2) Predominating hypertrophy of the upper jaw with marked separation of the teeth.

(3) Bilateral chronic synovitis of the knee joints.

The first symptoms noticed by a patient in 1896 consisted of progressive enlargement of the hands and feet, and changed facial outline and expression. The symptoms steadily progressed until 1901, when the writer noticed an enlargement of the clavicles, scapulæ and ribs, which has progressed steadily up to the present time. During the last twelve months the patient has shown a decided stoop and evidences of progressive weakness, no pain, no disturbance of special sense or of the general nervous system. Skin of the face and ears much hypertrophied and thrown into deep furrows. Nose, ears and eyelids originally tumid, much less so at the present time. Upper jaw has not increased in size since 1898. The larynx and its cartilages, originally hypertrophied, have shown no further change; radiographs shown demonstrated the extent of the bony enlargement of the extremities. When originally seen and during the period of myxedematous manifestation the thyroid gland was enlarged, though soft.

At the present time the myxedematous changes are entirely absent and the thyroid gland is apparently normal in size. First disappearance of the myxedema followed the persistent administration of thyroid tabloids, showing a tendency to recurrence whenever they were discontinued. No treatment has been necessary during the past eighteen months. The following were the first points of interest:

(*a*) Coincidence of symptoms of myxedema and undoubted acromegaly with enlargement of the thyroid gland.

(*b*) Disappearance of all symptoms of myxedema associated with a shrinking of the enlarged thyroid and under the administration of thyroid tabloids.

(*c*) The shifting of the site of abnormal bony growth.

(*d*) The long period of observation.

THE NATURE OF CIRRHOSIS OF THE LIVER.

A. O. J. Kelly, Philadelphia. The author made a study of a series of cirrhotic livers, with special reference to the changes in the parenchyma, suggesting that cirrhosis of the liver is primarily a degenerative process involving the parenchyma, followed not only by hyperplastic changes in the connective tissue, but also by reparative alterations on the part of the parenchyma. The rearrangement of the liver cells was not a typical one; in many acini there would be no central vein; or, it might be directly in the connective tissue. They are all in a hyperplastic condition. There is a necrosis and then the hyperplastic change. As to ascites it was in many instances due to the peritoneum and not to the changes in the liver. The frequent association of tuberculous peritonitis with ascites was referred to. When experimental ascites is produced it is at once followed by this hyperplasia.

DISCUSSION.

R. M. Pearce, Albany, showed two drawings illustrating experimental ascites. He said the portion of the liver spared was that about the larger blood vessels. There might be a process of repair resulting in hyperplasia. The histogenesis he thought was similar to what must occur in man.

Officers were elected for the ensuing year as follows: President, Dr. Frank Billings, Chicago; Vice-President, Dr. Francis P. Kinnicutt, New York; Secretary, Dr. Henry Hun, Albany; Recorder, S. Solis Cohen; Treasurer, Dr. J. P. Crozier Griffith, Philadelphia; Councilor, Dr. T. M. Prudden, New York.

The following new members were elected: Dr. A. B. Maccallum, Toronto; Dr. David Reisman, Philadelphia; Dr. Adolph Meyer, New York; Drs. J. L. Miller and R. H. Babcock, Chicago; Dr. Thomas McCrae, Baltimore, and Dr. S. S. Adams, Washington. Associate membership: Dr. J. D. Steele, Philadelphia; Dr. Joseph Sailer, Philadelphia; Dr. Joseph A. Capps, Chicago; Dr. Henry Christian, Boston; Dr. A. E. Taylor, San Francisco; Dr. L. A. Connor, New York; and Dr. Theodore Janeway, New York.

Recent Literature.

Dental Surgery for Medical Practitioners and Students of Medicine. By A. W. Barrett, M.B. (London), M. R. C. S. Philadelphia: P. Blakiston's Son & Co. 1905.

The effort to convey to the medical practitioner some knowledge of dental surgery is a timely one, but the information contained in this little book lacks sufficient detail to make it a trustworthy guide. The writer is so familiar with dental practice that he does not make allowance for the ignorance of the average physician concerning this subject. On the other hand a physician who desired to inform himself in regard to dental surgery would scarcely be content with the superficial knowledge of the subject to be gained by reading this little book.

The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By William Henry Battle, F.R.C.S., Surgeon to St. Thomas's Hospital; formerly Surgeon to the Royal Free Hospital; Hunterian Professor of Surgery at the Royal College of Surgeons of England, etc., and Edred M. Corner, M.B., B.C., F.R.C.S., Surgeon in charge of Out-Patients to St. Thomas's Hospital, and Assistant Surgeon to the Great Ormond Street Hospital for Sick Children; Erasmus Wilson Lecturer at the Royal College of Surgeons, etc. Chicago: W. T. Keener & Co. 1905.

This monograph gives a brief history of appendicitis and considers rather fully the diagnosis and the various complications of the disease. It is extremely interesting to see how English surgeons have come to appreciate what American surgeons mean by appendicitis. Dr. Fitz's work on appendicitis is spoken of as follows: "But the work of Fitz, embodied chiefly in two papers, published in 1886 and 1888 respectively, cannot be passed over." The authors plainly appreciate what American surgeons have done, for they state: "On the other side of the Atlantic the surgeons have led in the adoption of almost every surgical measure that has been utilized for appendicitis." The authors have written an excellent monograph which, while not at all exhaustive, is yet sufficiently complete.

A Manual of Surgical Diagnosis. By James Berry, B.S., F.R.C.S., Surgeon to and Lecturer on Surgery at the Royal Free Hospital; formerly Surgical Registrar and Demonstrator of Anatomy of Operative Surgery and of Practical Surgery at St. Bartholomew's Hospital. Philadelphia: P. Blakiston's Son & Co. 1904.

This small book is mainly intended for medical students. The author has used excellent judgment in selecting as limits to his book the injuries and diseases that are most common. He has presented many of the newer methods of examination. The book is divided into three parts: The first deals with the taking of a surgical history and the making of a physical examination; the second considers the diseases of the various organs and a differential consideration of such symptoms as inability to open the mouth, intestinal obstruction and abdominal pain; the third considers the injuries of the various regions. The book is very well written and fairly presents the author's twenty years of practical experience. It is a convenient size and we trust that future editions will not increase its bulk.

Clinical Hæmatology. A Practical Guide to the Examination of the Blood with Reference to Diagnosis. By John C. DaCosta, Jr., M.D. Second edition. Philadelphia: P. Blakiston's Son & Co. 1905.

In this second edition of Dr. DaCosta's work, we have a thoroughly up-to-date textbook on the subject of Clinical Hematology.

The book contains descriptions of all the recent developments along the line of its subject, including the investigations on immunity, the description of the blood of newly established clinical entities as trypanosomiasis, kala-ayar, the records of the blood findings in x-ray therapy, etc. The author has used his critical faculty in selecting and grouping the important and fully-established facts on the subject in such a way that the reader can assimilate the knowledge which is really practical with least labor. This gives the book a marked value for the practitioner who would use it for reference.

Accidents and Emergencies. A Manual of the Treatment of Surgical and Medical Emergencies in the Absence of a Physician. By Charles W. Dulles, M.D., Fellow of the College of Physicians of Philadelphia and of the Academy of Surgery; Surgeon to the Rush Medical College, etc. Sixth edition. Thoroughly revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

It will be admitted that the ordinary physician, largely through lack of experience, is not well versed in the treatment of many types of emergencies, particularly of a medical sort. Dr. Dulles attempts with success to supply this need, both on the surgical and medical side. His manual has reached a sixth edition, and, we have no doubt, has been found useful by many without the medical profession as well as within it. It is comprehensive in its scope, although brief in presentation and is well illustrated. We commend the book to physicians and laity alike.

The Medical Examination for Life Insurance and its Associated Clinical Methods, with chapters on the Insurance of Substandard Lives and Accident Insurance. By CHARLES LYMAN GREENE, M.D., Professor of the Theory and Practice of Medicine in the University of Minnesota, Member of the Association of American Physicians, American Medical Association, ex-President of the National Association of Life Insurance Examining Surgeons, formerly Medical Director of the Minnesota Mutual Life Insurance Co., etc. Second edition. Revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905.

After a lapse of two years, during which the book has been out of print, a second edition of this well-known work on Life Insurance has appeared. In general, the volume is in the same form as the earlier edition, but certain modifications have been made and some of the more important sections rewritten and enlarged. A report of the collective investigation of the Actuarial Society of America has been introduced with frequent applications of its findings throughout the text.

The whole subject of life insurance is treated in a philosophical spirit bearing out the author's conviction that life insurance examiners should understand something of insurance problems if they are to properly fulfil their function. Numerous statistics which belong specifically in the domain of life insurance are of the greatest value to the practitioner in general, and the book may be read with profit by student or physician alike. As a matter of fact, such a volume comes as much into the category of a brief textbook of physical diagnosis as of a manual to be used solely by the life insurance examiner. What is called the student's section on the fundamental points in relation to the physical examination of the chest and abdomen is a model of clearness and conciseness, admirably illustrated.

It is a matter of regret that a juster ratio between the various diseases is not maintained in life insurance blanks as well as in books dealing with the general subject. A curious neglect of certain absolutely fundamental and easily ascertained signs on the part of the nervous system, for example, are barely alluded to, whereas disorders of certain of the internal organs, by no means more frequent in practice, are given undue importance. It is, for example, difficult to see why an elaborate heart examination should be absolutely demanded of a life insurance examiner, whereas he is not even called upon to report his findings regarding pupils or knee jerks. The reasons for this somewhat anomalous state of affairs are no doubt sufficient in the eyes of those in authority, but that important mistakes are daily being made in consequence is not for a moment to be doubted. We regret that Dr. Greene has not risen to his opportunity in this respect and devoted at least a chapter to the examination of the nervous system. Reform is certainly needed and it might well come through such a channel as this.

A Text-Book of Medical Chemistry and Toxicology. By JAMES W. HOLLAND, M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. 8vo volume of 600 pages, fully illustrated, including plates in colors. Philadelphia and London: W. B. Saunders & Company. 1905.

In the preparation of this work Dr. Holland has recognized the fact that to understand physiological chemistry students must first be informed upon points not referred to in most medical text-books, and he has, therefore, included in this volume the latest views of equilibrium of equations, mass-action, cryoscopy, osmotic pressure, dissociation of salts into ions, the effect of ionization upon electrical conductivity, and the relation between purin bodies, uric acid and urea. Chemical substances have been treated from the standpoint of the medical student and the physician, and more space has been devoted to toxicology than is found in most other text-books on chemistry. Chapters on the clinical chemistry of the milk, urine, gastric contents, and on water supply and filtration have been given a place. Dr. Holland's book will undoubtedly be gladly received by the profession.

The Surgical Treatment of Facial Neuralgia. By J. HUTCHINSON, Jr., F.R.C.S., Surgeon to the London Hospital; Examiner in Surgery, Royal Army Medical Department. New York: William Wood & Company. 1905.

Mr. Hutchinson has contributed a very interesting and valuable monograph on this subject, and anyone who has to do with facial neuralgia will certainly wish to own this book. A judicial spirit seems to pervade the book and he is by no means an advocate of any individual operation. He carefully considers the various methods that have been advocated and apparently has good reasons for the use of each of the methods in each of the individual cases. He refers the reader to the valuable monograph by Professor Krause and states: "Professor Krause's valuable monograph, published in 1896, is, however, the only one which gives at all a complete review, and it is largely occupied with questions relating to the physiology of the fifth nerve." He states that the book was written with "the hope of providing a clear account of a complex and difficult subject, and of making it more simple."

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MENTAL PHENOMENA ASSOCIATED WITH ANESTHESIA.

PROF. JOSEPH JASTROW of the department of psychology of the University of Wisconsin has recently called attention to a matter which should prove of interest to physicians and psychologists alike. The suggestion which he makes is that a possibly useful series of observations might be made upon persons undergoing anesthesia, particularly in relation to the process of passing under the influence of the anesthetic and of recovering from its effects. He asks for the co-operation of surgeons and of anesthetizers in securing data upon certain mental states related to the condition of anesthesia, with special reference to the relations existing between the phenomena recorded during anesthesia and the normal waking state. The inquiry is recognized as a difficult one requiring skilled questions and tests of ingenuity.

Some of the special details of the inquiry Professor Jastrow discusses at some length. First, arises the question of increased suggestibility. It is to be determined whether the patient will carry out automatically during his condition of enfeebled consciousness certain suggestions made to him by the bystanders. If this be the fact, it is desirable to determine how obedience to such suggestions becomes apparent. A second matter of importance relates to the automatic activities. It is desirable to obtain illustrations of automatic talking, mechanical acts, simple tricks of manner, and similar facts which may throw light upon the so-called subconscious mental activity. A further line of investigation relates to the analogies between the lighter states of anesthesia and dream life; for example, if the patient be questioned as to his mental processes up to the moment of losing consciousness and also during the regaining of full consciousness, facts of importance should result in relation to waning and waxing states of consciousness. Many other points of inquiry have suggested themselves to Professor Jastrow's mind in relation to abnormal consciousness in connection with the waking state and the correlation of different types of mental states with different degrees of anesthesia.

The foregoing will suffice to indicate the general method of investigation which it is proposed to follow if sufficient co-operation can be secured. The facts gained will be used in the formulation of an account and interpretation of the range of subconscious mental states whereby it is hoped that a sufficient series of data may be secured to throw light upon many imperfectly understood mental processes.

It is undoubtedly desirable that collateral branches of science be brought as far as possible into connection with one another through research from various points of view. The psychologist certainly bears a closer relation to medical science than is ordinarily acknowledged, and we should welcome an investigation in which the co-operation of physicians and psychologists may be utilized for a common end. The somewhat original investigation suggested by Professor Jastrow permits of such co-operation, but in spite of valuable results which might be obtained we question somewhat the feasibility of the plan as outlined. In the first place it would demand that at every surgical operation at which such data were collected there should be present a highly trained psychologist to make the investigation, and that he be given, during the period of entering upon and recovery from anesthesia, a free hand with the patient concerned. This seems entirely unlikely of accomplishment. The patient demands and should receive the care of physicians during the entire period of anesthesia, and we can hardly imagine that the machinery of surgery could be advantageously combined with the subtleties of psychology in ordinary hospital practice, even were sufficiently trained men obtainable. In order that such data should have the least value they must be carefully controlled and tabulated under identical conditions, again a matter of very great difficulty. More reliable statistics could no doubt be obtained through the voluntary etherization of a large number of selected individuals who might consent to serve solely for the purpose of the experiment.

We have, however, no desire to discourage any

attempt which is designed to elicit valuable information without hardship to those concerned. We shall, therefore, await with interest the results of Professor Jastrow's study, which, we trust, he will be able to carry through in the way which he has suggested.

A PRACTICAL METHOD OF TEACHING SURGERY.

THE difficulty of teaching operative surgery to medical students has long been acknowledged. The use of the cadaver as ordinarily employed for this purpose has many obvious disadvantages in that it fails to reproduce the very essential element of the circulating blood. The plan also of reproducing human operations on animals has certain disadvantages from a humanitarian standpoint which no doubt are less than the advantages gained, but still undesirable. In a recent number of the *Johns Hopkins Hospital Bulletin*, Dr. Harvey Cushing of Baltimore discusses the question in an introduction to an article on Comparative Surgery, written by four other contributors. Recognizing the imperfection of the generally accepted method of teaching surgery on the cadaver, about four years ago the method of operating upon animals was introduced into the Johns Hopkins Medical School. In these operations every effort was made to comply with the formalities of surgical procedure as if the animal were actually admitted to a surgical hospital ward. Histories have been kept on regular hospital history sheets; the effect of the anesthetic has been recorded, together with the details of operative preparation both of the staff and patient. If the operation proved fatal, a formal autopsy was performed and its results incorporated in the record. This method has proved a success and been adopted elsewhere, the object sought being to teach the proper use of the hands and the actual problems met with in surgical procedures. The method should make a student useful later in the hospital operating room and also make him an understanding spectator of the surgical work of others, which under ordinary circumstances is not the case on the part of those who have never themselves conducted operations.

Perhaps the most interesting outcome of this method has been the gradual establishment of what is likely to become an animal clinic. Learning of the benefit that might come to animals with various surgical diseases, owners of such animals have brought them more and more to this surgical clinic for treatment, naturally to the benefit of the patient as well as to the owner. From present appearances there is promise of a clinic which will soon obviate in great measure the need of using normal animals. A building is, in fact, being erected where accommodations and modern hospital care may be given the animals which, on account of the object to be attained, namely, the reproduction so far as possible of human conditions, will have better care than would be likely in veterinary hospitals.

A series of extremely interesting cases from a surgical and pathological standpoint follows these introductory remarks of Dr. Cushing, illustrating a large number of lesions which are common to man and animals. The value of the suggestion offered in this paper for the teaching of a subject which above all others demands the actual use of the hands and mind is sufficiently apparent. The feasibility of the plan of establishing a model animal hospital has been demonstrated by the experience of the Johns Hopkins Medical School. It clearly affords the opportunity of greatly increasing the value of surgical teaching as well as providing for the surgical diseases of animals which under ordinary conditions would be neglected.

THE CHOICE OF PROFESSION.

As is customary, certain preliminary statements have been given out from the graduating class of Harvard University regarding the proposed vocations of its members. As usual, also, the law claims the largest number, according to the figures we have seen, upwards of twice as many as propose to enter medicine. That there should be such a disparity between these two leading professions is worthy of note. It is, however, not difficult to see wherein the law attracts. In the first place, the law is a stepping-stone to other things, and a degree in law carries with it a certain claim to a liberal education which is apparently lacking in the scientific work of medicine. In other words, the student who chooses law makes a far less weighty and permanent decision than a man who elects to study medicine. His mind may be changed during his legal course or immediately after its completion without loss of prestige. He has added to his store of knowledge of affairs and may then turn to politics or literature or diplomacy, whereas the man who chooses medicine is in a measure committed not only to a completion of his course, but to a future prosecution of some branch of it if his years of study are not to be essentially wasted. We have no doubt this is one of the motives which influence men about

leaving college in the choice between these two professions. The law carries on what they have already been doing, whereas medicine is to many an unpleasant change which bears little resemblance to their previous work. Whether or not these influences are operative, the fact remains that medicine is not at the present time receiving a large increment from the academic departments of our universities. This fact, combined with the heightened requirements for admission to the medical course, brings us face to face with a problem which has been increasingly apparent during the past few years. Under the present condition of medical education there can be no question that we need more medical students, and as a matter of fact students are not applying in proportion to the increasing facilities for their instruction. The present Harvard class appears to offer no exception to this rule.

MEDICAL NOTES.

Hospital for San Francisco. — It is stated that San Francisco is to have a new city and county hospital at a cost of one million dollars.

Hospital for Porto Rico. — An attempt is being made to raise money for a hospital at Ponce, Porto Rico, under the general supervision of the Episcopal Church. The needs of a hospital are estimated at about $100,000.

Lectureship on Tuberculosis. — The State University of Iowa has made a new departure in establishing a Lectureship on Tuberculosis in connection with the medical department of that institution, and has appointed Dr. J. W. Kime of Fort Dodge, as Lecturer.

The Death-rate in Chicago. — According to the bulletin of the Chicago Health Department, the death-rate in that city has been decreased by more than 50% during the last fifty years. Dr. Arthur R. Reynolds, who has served the city as commissioner of health for ten years, calls attention to the fact alluded to editorially in a daily paper, that in spite of Chicago's low death-rate, the lowest in 1900 of the leading cities of the country, but ten cents per capita is given its health department as contrasted with thirty cents for New York and Boston.

Cremation in France. — The twenty-fifth meeting of the French Society for the Promotion of Cremation was recently held in Paris, with Dr. Bourneville as president. From the statistics offered at this meeting it appears that 90 crematories are in use in Europe and America and that about 125,000 bodies have been cremated in these countries. Germany, in general, shows considerable activity in this reform, but Prussia has been conservative. In spite of the efforts being made by the society in France the popularity of this method of disposing of the dead does not increase. An active effort is, however, being made by means of lectures and distribution of leaflets to render cremation more popular. This will no doubt in time be accomplished.

Mt. Sinai Hospital. — From the recent report of the Mt. Sinai Hospital in New York the following statement regarding the institution is given:

"The internes, patients, nurses, house officers, house staff and employees, who lodge and board in the hospital, aggregate at present over 700 persons. Adding the consulting, attending, adjunct attending, and dispensary medical staffs, our present organization indicates a total of 835 persons. When our departments are in full operation, the additional patients and nurses and other employees required for the increased service will swell the entire number to 1,050 persons. In this calculation, the 400 patients treated daily in our dispensary are not included. Considering these, our daily roll call will represent over 1,500 patients, attaches and employees in the entire service."

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, June 28, 1905, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 37, scarlatina 17, typhoid fever 5, measles 35, tuberculosis 45, smallpox 0.

The death-rate of the reported deaths for the week ending June 28, 1905, was 14.26.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 24, 1905, was 201, against 174 the corresponding week of last year, showing an increase of 27 deaths, and making the death-rate for the week 17.07. Of this number 100 were males and 101 were females; 198 were white and 3 colored; 121 were born in the United States, 77 in foreign countries, and 3 unknown; 39 were of American parentage, 129 of foreign parentage, and 33 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 25 cases and 2 deaths; scarlatina, 22 cases and 1 death; typhoid fever, 4 cases and 1 death; measles, 33 cases and no deaths; tuberculosis, 48 cases and 21 deaths; smallpox, no cases and no

deaths. The deaths from pneumonia were 17, whooping cough 0, heart disease 24, bronchitis 4, and marasmus 5. There were 12 deaths from violent causes. The number of children who died under one year was 34; the number under five years, 49. The number of persons who died over sixty years of age was 45. The deaths in public institutions were 90.

Cases of cerebrospinal meningitis reported for the week were 7, the deaths, 5.

Address in Medicine at Yale University. — The annual address in medicine this year at the Yale University Commencement was delivered by A. Jacobi, M.D., LL.D., on the subject, "The Era of Therapy."

Dinner to Dr. S. C. Gordon. — On June 6, a dinner was given to Dr. Seth C. Gordon of Portland, Maine, commemorative of the fiftieth year of his medical practice. The dinner was attended by physicians from various parts of the country, and at its end he was presented with a silver service.

Adams Nervine Asylum. — The annual report of the Adams Nervine Asylum shows that the total number of admissions for the year was 131, being 23 more than the previous year, and the largest number hitherto treated in any one year. Of the number cared for it appears that 82% were wholly or in part beneficiaries of the institution, which does away with the somewhat wide-spread idea that the asylum is not a charitable institution. Through the co-operation of the Newton Hospital and the Corey Hill Hospital an exchange of nurses has been accomplished, thereby making possible a wider experience in the course of their training.

NEW YORK.

Honorary Degrees for Physicians.—Among those upon whom the degree of Doctor of Laws was conferred at the annual commencement of Fordham University (in the Borough of the Bronx) on June 21 were Dr. James N. Butler, the dean of the new medical department of the University, and Dr. John J. Aspell, gynecologist to St. Vincent's Hospital.

Commencement of Columbia University. — At the one hundred and fifty-first commencement of Columbia University, which was held on June 14, 1,137 degrees were conferred, the largest number in the history of the University. There were 157 graduates from the medical department, the College of Physicians and Surgeons. Of the fellowships of the Alumni Association of the school the fellowship in pathology was awarded to Oliver S. Strong, Ph.D., and that in anatomy to Dr. Edward A. Spitzka. Charles J. Herrick, Ph.D., received the Cartwright prize, and Augustus B. Wadsworth, M.D., the Alonzo Clark scholarship.

A New Dispensary. — Plans have been filed with the Building Department for a five-story, fireproof dispensary at the northeast corner of Park Avenue and 76th Street, to be built as a memorial of Mrs. Anna Ottendorfer, and to be known as the Ottendorfer Dispensary. It is to have a frontage of one hundred feet, and will cost $175,000. It will be operated in connection with the German Hospital, which is situated on the block above.

Prevention of Tuberculosis. — The Charity Organization Society's committee on the Prevention of Tuberculosis is carrying forward its work among the negro population of the city with energy. A sub-committee of twenty-one colored physicians and clergymen having been organized, the Health Department has placed the dispensary of its tuberculosis clinic in charge of the medical members of this sub-committee for three evenings of each week. A colored nurse of the Charity Organization Society will be in attendance, and will visit the patients at their homes. Furthermore, a course of illustrative lectures on the subject of tuberculosis is to be given in the colored churches. The number of negroes in the city is between 60,000 and 65,000, and the Health Department reports show that among them the death-rate from tuberculosis is 5.33 per thousand, as against 2.37 among the white population.

Death Following Use of Diphtheria Antitoxin. — A death following the use of diphtheria antitoxin during the past week has attracted considerable attention. The case was that of Yetta Green, a child, seven years old, who died within a few minutes after the injection was made. Her sister, four years old, who had diphtheria, was given 5,000 units of antitoxin by an inspector of the Health Department, and Yetta and another sister, 1,000 units, by way of prophylaxis. That the antitoxin itself had nothing to do with the girl's death was shown by the short time elapsing between its administration and the fatal result, and by the fact, revealed at the autopsy made by Coroner's Physician Lehane, that she was the subject of a congenital malformation of the heart. As a result of this, it was concluded that death was due to the effect on the heart of the excitement and fear arising from the making of the injection.

Miscellany.

CHEYNE-STOKES RESPIRATION.

As stated in the *British Medical Journal*, Prof. A. Mosso has made an extensive series of observations at stations on Alpine summits of different altitudes on the influence of altitude in the production of Cheyne-Stokes breathing. His observations confirm him in the opinion[1] that this phenomenon is not due to oxygen hunger. One of the reasons which tends to invalidate this hypothesis is the fact that periodic respiration is much less perceptible during the day than at night, and in every case its intensity is greatly increased during sleep. If, however, a demand for more oxygen were the cause of the phenomenon, the reverse would be the case, because it is well known that the body requires a greater supply of oxygen when awake than when asleep. Moreover, experiments performed on himself and Professor Galeotti when sleeping on the summit of the Capanna Regina Margherita, at an altitude of 4,560 meters, have shown that the administration of oxygen inhalations does not abolish the Cheyne-Stokes phenomenon. The possibility of anoxyhemia being thus excluded, the only alternative left is to suppose that the phenomenon is due to a diminished excitation of the respiratory centers, consequent on a diminution in the quantity of CO_2 circulating in the blood. This hypothesis has been verified by showing that inhalations of carbonic acid constantly have a regulating effect upon the respiration; the periods disappear, and both the rhythm and the form of respiration return to the normal. Professor Mosso distinguishes two types of periodic respiration: In the one the disturbance is not confined to the respiratory mechanism, but extends to the motor centers of the extremities and the trunk, and also to the vascular and cardiac centers; in the other, the respiratory centers alone are affected. The former and more severe type is explained by the physiological fact that the disturbance of one group of nerve centers is often accompanied by a simultaneous functional disturbance of other centers; and thus, concurrently with the respiratory disorder, irregularities ensue in certain psychic centers, in the cardiac movements and in the tonicity of the blood vessels. With regard to the latter type, where the Cheyne-Stokes phenomenon is limited to the respiratory mechanism, Professor Mosso does not agree with the view expressed by Luciani in 1879 that it is "the extrinsic expression of the oscillation in nutrition which is taking place within the respiratory centers." Whilst denying this alleged causal influence of nutritive changes, Professor Mosso is of opinion that the periodicity is comparable in character to the oscillations which take place in sensations which are near the "threshold," when the excitation of the sense is reduced to the least intensity perceptible. So, with the respiratory center, the value of the "threshold" is lowered, and its action may be efficacious or inefficacious at different times.

[1] Arch. Ital. de Biol., vol. xliii, 1905, p. 81.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JUNE 17, 1905.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever	Cerebro-spinal Meningitis.
New York	3,908,644	1,369	432	31.75	11.19	2.44	1.02	3.31
Chicago	1,990,750	459	139	26.57	11.98	1.74	.87	.22
Philadelphia	1,497,988	421	117	33.25	9.97	2.15	4.04	.23
St. Louis	653,029	—	—	—	—	—	—	—
Baltimore	543,239	176	60	30.11	4.54	—	.57	.57
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	393,403	122	52	51.64	—	—	—	—
Cincinnati	358,277	—	—	—	—	—	—	—
Milwaukee	325,980	—	—	—	—	—	—	—
Washington	309,776	—	—	—	—	—	—	—
Providence	196,744	76	20	18.42	13.16	—	1.31	1.31
Boston	617,980	185	50	27.02	13.43	2.70	.54	3.24
Worcester	126,925	43	11	16.27	11.62	—	—	4.65
Fall River	119,340	32	18	28.12	6.27	3.12	—	—
Lowell	104,402	25	9	24.00	4.00	—	4.00	12.00
Cambridge	100,986	17	2	35.29	23.53	—	—	11.76
Lynn	78,575	23	5	21.74	—	—	4.35	—
Lawrence	72,948	20	4	25.00	10.00	—	—	5.00
Springfield	72,020	24	5	16.67	12.50	4.16	4.16	—
Somerville	70,413	16	4	18.75	12.50	—	—	—
New Bedford	69,862	31	13	22.58	6.45	—	—	—
Holyoke	60,588	15	5	20.00	26.67	6.66	—	6.66
Brockton	46,601	7	—	14.30	—	—	—	—
Newton	39,310	13	3	—	—	—	—	—
Haverhill	39,061	13	4	—	8.33	—	—	—
Malden	37,805	6	3	—	16.67	—	—	—
Salem	37,188	13	4	—	7.70	—	—	—
Chelsea	36,499	7	1	—	14.30	—	—	—
Fitchburg	36,235	3	1	—	33.33	—	—	—
Taunton	34,577	4	1	25.00	—	—	25.00	—
Everett	30,280	10	3	10.00	—	10.00	—	—
North Adams	20,301	3	1	—	—	—	—	—
Quincy	26,798	4	—	25.00	25.00	—	—	—
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	4	1	25.00	—	—	—	—
Brookline	25,278	—	—	—	—	—	—	—
Pittsfield	23,570	2	—	—	50.00	—	—	—
Medford	21,556	5	—	20.00	—	—	—	—
Chicopee	21,392	8	3	25.00	25.00	—	—	—
Northampton	20,514	5	2	—	—	—	—	—
Beverly	15,907	5	—	40.00	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	1	0	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,509	2	0	—	—	—	—	—
Newburyport	14,478	3	1	—	—	—	—	—
Woburn	14,315	3	—	—	—	—	—	—
Melrose	13,819	5	1	20.00	—	—	—	—
Westfield	13,809	3	—	33.33	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,669	1	0	—	—	—	—	—
Revere	13,609	4	—	25.00	—	—	—	—
Framingham	13,574	—	—	—	—	—	—	—
Peabody	12,405	—	—	—	—	—	—	—
Gardner	12,324	—	—	—	—	—	—	—
Southbridge	11,716	2	—	50.00	—	—	—	—
Watertown	11,575	2	1	50.00	—	—	—	—
Weymouth	11,350	3	0	66.67	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,094; under five years of age, 975; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 917; acute lung diseases 328, consumption 400, scarlet fever 18, whooping cough 28, cerebrospinal meningitis 61, smallpox 3, erysipelas 12, puerperal fever 13, measles 49, typhoid fever 47, diarrheal diseases 226, diphtheria and croup 60.

From whooping cough, New York 10, Chicago 9, Philadelphia 3, Baltimore 2, Pittsburg 2, Waltham 1, Chicopee 1. From scarlet fever, New York 5, Chicago 1, Philadelphia 3, Pittsburg 7, Beverly 1, Westfield 1. From erysipelas, New York 10, Chicago 1, Boston 1. From smallpox, Chicago 3.

In the seventy-six great towns of England and Wales, with an estimated population of 15,609,377, for the week ending June 10, 1905, the death-rate was 13.5. Deaths reported 4,051; acute diseases of the respiratory organs (London) 68, whooping cough 109, diphtheria 42, measles 144, smallpox 1, scarlet fever 26.

The death-rate ranged from 5.0 in Great Yarmouth to 23.3 in Merthyr Tydfil; London 13.8, West Ham 8.8, Brighton 13.5, Southampton 9.1, Plymouth 17.5, Bristol 10.8, Birmingham 14.7, Leicester 13.0, Nottingham 8.9, Liverpool 14.6, Wigan 14.5, Bolton 10.0, Manchester 15.5, Salford 20.3, Halifax 13.5, Bradford 14.2, Leeds 12.2, Sheffield 15.4, Hull 12.9, Newcastle-on-Tyne 14.2, Cardiff 12.7, Rhondda 13.3, Hornsey 6.2, Middlesbrough 22.8.

METEOROLOGICAL RECORD.

For the week ending June 17, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 11	29.92	69	76	62	75	82	78	S W	S	9	15	O.	C.	.04
M. . 12	29.80	64	66	61	80	95	88	S W	W	14	8	O.	R.	.20
T. . 13	29.82	68	80	57	83	95	94	S W	S W	7	10	O.	F	.03
W. . 14	30.00	74	85	63	63	62	64	W	W	7	7	C.	C.	0
T. . 15	30.11	68	72	63	67	78	72	W	K	4	4	C.	O.	0
F. . 16	30.09	78	89	67	60	76	68	S W	S W	7	7	O.	F	0
S. . 17	30.03	78	87	68	71	78	74	S W	S W	10	10	O.	R.	.4
Σ	29.97		79	63			77							1.01

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Σ Means for the week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JUNE 14, 1905.

STIMPSON, W. G., passed assistant surgeon. Granted leave of absence for five days from July 5. June 13, 1905.

ROSENAU, M. J., passed assistant surgeon. Detailed to represent the Service at meeting of American Medical Association at Portland, Ore., July 11–14. June 8, 1905.

BLUE, RUPERT, passed assistant surgeon. Granted leave of absence for sixteen days from June 22, 1905.

SPRAGUE, E. K., passed assistant surgeon. Granted leave of absence for one month from June 27. June 10, 1905.

CUMMING, H. S., passed assistant surgeon. Detailed for duty on special Revenue-Cutter Service board. June 8, 1905. Detailed to represent the Service at meeting of American Medical Association at Portland, Ore., July 11–14. June 8, 1905.

FOSTER, M. H., passed assistant surgeon. Granted leave of absence for one month from June 11. June 10, 1905.

WILSON, R. L., passed assistant surgeon. Granted extension of leave of absence for seven days. June 14, 1905.

FRANCIS, EDWARD, assistant surgeon. Granted leave of absence for seven days. June 8, 1905.

ALTREE, G. H., acting assistant surgeon. Granted leave of absence for thirty days from June 10. June 9, 1905.

BAILEY, C. W., acting assistant surgeon. Department letter of May 10, granting acting assistant surgeon Bailey leave of absence for twenty-six days, amended to read ten days from June 5. June 13, 1905.

BLAIN, A. C., acting assistant surgeon. Granted leave of absence for fourteen days from June 14. June 9, 1905.

DREW, A. D., acting assistant surgeon. Granted leave of absence for five days under paragraph 210 of the regulations.

HUNTER, W. R., acting assistant surgeon. Granted leave of absence for ten days from June 11. June 9, 1905.

SIMONSON, G. T., acting assistant surgeon. Granted leave of absence for two days from June 11. June 12, 1905.

WALKLEY, W. S., acting assistant surgeon. Granted leave of absence for two days from June 16. June 14, 1905.

WIGHTMAN, W. M., acting assistant surgeon. Granted leave of absence for two days under paragraph 210 of the regulations.

CARLTON, C. G., pharmacist. Granted leave of absence for one day from June 9, 1905, under paragraph 210 of the regulations.

BIERMAN, C. H., pharmacist. Department letter May 19, 1905, granting pharmacist Bierman leave of absence for thirteen days from June 7, 1905, revoked. June, 13, 1905.

BOARDS CONVENED.

Board convened to meet at the marine hospital, New Orleans, June 13, 1905, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the Board: Surgeon A. C. Smith, chairman; Assistant Surgeon F. H. McKeon, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 24, 1905.

B. B. CHAPMAN, assistant surgeon. Orders of April 19 1905, modified; ordered to Naval Station, Guam, L. I.

G. C. HART, acting assistant surgeon. Detached from duty with the Marine Detachment at Dry Tortugas, Fla., and ordered home to wait orders.

C. H. DE LANCY, passed assistant surgeon. Detached from the "Marblehead" and ordered home to wait orders.

W. S. HOEN, assistant surgeon. Detached from the "Zafiro" and ordered to the "Marblehead."

J. F. MURPHY, assistant surgeon. Detached from the "Hancock" June 23, and ordered to the Naval Recruiting Station, Buffalo, N. Y., June 23.

H. T. NELSON, assistant surgeon. Detached from the Naval Hospital, Washington, D. C., June 27, and ordered to the Naval Proving Grounds, Indian Head, Md., June 28.

J. B. MEARS, acting assistant surgeon. Detached from the Naval Recruiting Station, Buffalo, N. Y., June 24, and ordered to Washington, D. C., for examination for appointment as assistant surgeon, and then wait orders.

E. M. SHIPP, surgeon. Detached from Naval Medical School, Washington, D. C., July 27, and ordered to duty at the Naval Hospital, New York, N. Y.

W. L. BELL, passed assistant surgeon. Having been examined by a retiring board, and found incapacitated for active service on account of disability incident thereto, is retired from active service under the provisions of section 1453 Revised Statutes.

J. H. IDEN, passed assistant surgeon. Detached from the Naval Medical School, Washington, D. C., June 28, and ordered home to wait orders.

R. A. CAMPBELL, acting assistant surgeon. Detached from duty with 2d Torpedo Flotilla on board the "Worden" and ordered to Utica, N. Y., July 1, for duty with naval recruiting party, No. 5.

H. W. JUDD, acting assistant surgeon. Detached from the Naval Proving Ground, Indian Head, Md., June 28, and ordered to Huntington, W. Va., July 1, for duty with naval recruiting party No. 4.

L. W. SPRATLING, surgeon. Detached from duty with the Isthmian Canal Commission and ordered home to wait orders.

J. H. HOLLOWAY, assistant surgeon. Detached from the "Baltimore" and ordered home.

J. P. TRAYNOR, assistant surgeon. Detached from the "Rainbow" and ordered home.

R. A. BACHMANN, assistant surgeon. Detached from the "Villalobos" and ordered home.

J. E. DYKES, assistant surgeon. Detached from the Naval Station, Cavite, P. I., and ordered to the "Baltimore."

BOOKS AND PAMPHLETS RECEIVED.

Report of the Commissioner of Education for the year 1903. Vol. II. Washington. 1905.

Publications of the Massachusetts General Hospital, Boston. Vol. I, No. 1, May, 1905. The Biology of the Micoörganism of Actinomycosis. By James Homer Wright, M.D. The Gross Prize Essay for 1905. Boston: Publication Office of the Journal of Medical Research.

A Manual of Practical Hygiene for Students, Physicians and Medical Officers. By Charles Harrington, M.D. Third Edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1905.

Tumors of the Cerebellum. By Charles K. Mills, M.D., Charles B. Frazier, M.D., George E. de Schweinitz, M.D., T. H. Weisenburg, M.D., and Edward Lodholz, M.D. Reprint.

Practical Dietetics, with Special Reference to Diet in Disease. By W. Gilman Thompson, M.D. Third edition, enlarged and thoroughly revised. New York and London: D. Appleton & Co. 1905.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden. Authorized American Edition translated under the direction of Boardman Reed, M.D. Part VI. Drink Restriction (Thirst-cures), particularly in Obesity. By Prof. Carl von Noorden and Dr. Hugo Salomon. New York: E. B. Treat & Co. 1905.

Saunders' Pocket Medical Formulary. With an Appendix. By William M. Powell, M.D. Seventh edition, thoroughly revised and enlarged. Philadelphia and London: W. B. Saunders & Co. 1905.

Addresses and Other Papers. By William Williams Keen, M.D., LL.D., F.R.C.S. (Hon.) Illustrated. Philadelphia and London: W. B. Saunders & Co. 1905.